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## ORIGINAL COMMUNICATIONS.

(Original communications are received with the understanding  
that they are contributed exclusively to THE LARYNGOSCOPE.)

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### RETROSPECT OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

As a fitting close to the season of 1903, a year characterized by diligent work along well beaten roads rather than by research and innovations in the field of Otology, Rhinology and Laryngology, we have endeavored to present our readers with a brief retrospect of the original communications and abstracts which have appeared in the pages of THE LARYNGOSCOPE. The reference numbers used in this retrospect indicate the pages in Volume XIII of THE LARYNGOSCOPE, to which the reader may refer for fuller details.

One of the most interesting and as yet somewhat unsettled questions is that of the separation and independent consideration of the three specialties, Otology, Rhinology and Laryngology. In this controversy our trans-Atlantic confreres have been especially active ever since the matter was so energetically discussed at the Sixth International Otological Congress in London in 1900. In this controversy British, German, Austrian and French colleagues were the advocates of separating this trinity of specialties; the Italian and our few American representatives alone favored the maintenance of this "Dreibund." Following the Congress our contemporary journals abroad discussed the question editorially, and resolutions were adopted by several of the special societies abroad, favoring this subdivision.

To-day America and Italy still express the sentiment of maintaining this trio of specialties as a unit. Evidently the advocates of separation are deeply impressed with the genesis and historic development of these individual specialties to such an extent that they permit this idealism to outweigh more tangible and practical issues.

I think I am safe in the assertion that with but few exceptions our American confreres retain the trio of specialties in their professional work. It may be unnecessary to observe that the practical and successful treatment of the bulk of Otological patients is scarcely possible without proper attention to the nose and naso-pharynx, and that this gateway to the upper respiratory tract is concerned in the production of by far the majority of this class of cases. It would be just as pertinent to separate Rhinology from Laryngology as to divorce Otology from Rhinology. Anatomical, physiological, pathological and therapeutic conditions are so contiguous and similar in the consideration of these three specialties that their preservation as a unit should be placed on a higher plane and standard than their mere historical evolution and the ideals and theories developed in the convention hall.

We have been prompted to this expression by reading a review of Gradenigo's splendid treatise on the pathology and therapy of the ear and upper respiratory tract in a recent issue of the *Archiv f. Ohrenheilkunde*. This excellent work is a fitting tribute to the practical value and importance of maintaining our special trio intact, as presented by this representative Italian Oto-Rhino-Laryngologist.

Of the other large works which we have reviewed during the past season special mention should be made of the American treatise on the eye, ear, nose and throat edited by Drs. Posey and Jonathan Wright; a revised edition of the well-known Dench's diseases of the ear, and a fourth English edition of Politzer's classic text-book on the ear.

#### OTOLOGY.

*External Ear.*—Of the unusual neoplasms of the external ear Garzia (324) cites two cases of epithelioma of the concha; both neoplasms were radically removed and no recurrence noted eighteen months after date. Poli (324) reports a cyst of the external auditory meatus, confirming diagnosis by histo-pathological examination. Lunghini (32) records a case of sarcoma of the external auditory meatus; Grazzi (325) describes a case of tuberculosis of the concha and a similar case is reported by Ostinio (325). In describing furunculosis of the auditory canal following an acute otitis media, Vues (156) emphasizes the importance of careful differential diagnosis between this condition simulating mastoiditis and actual mastoid lesions.

*Membrana Tympani.*—The question of artificial ear drums has been reviewed by Gomperz (956), who, in a practical paper, discusses recent experiments with discs of celluloid and fine chemically-pure discs of silver. It was found that these discs were satisfactory in cases where artificial membranes of other substances could not be tolerated. Perfect asepsis is emphasized and Gomperz first applies alcohol and ether, and then 5 per cent mentholated oil as far as the edge of the tympanic cavity. Goldstein (577) reports a most unusual case of spontaneous bi-lateral hemorrhage from the ear, in which careful and repeated examination failed to determine the source of the bleeding, and the membrana tympani apparently remained intact. The author believes this case to be a neurosis of hysterical form, and in a very exhaustive monograph excludes every other possible etiology. Carefully prepared abstracts of all cases of hemorrhage of the ear with intact membrana tympani occurring in the entire Otological literature are also included with this monograph. Oppenheimer (594) presents a paper on localized hemorrhage into the tympanum with intact membrana tympani, citing two clinical cases and referring especially to the etiology and pathology of this phenomenon. Roy (601) advocates exploratory puncture of the drum membrane in certain diseases of the middle ear, reporting two cases to illustrate the importance of this technique, where a diagnosis is uncertain. In the one case a mucous polypus located in the tympanic cavity was removed; the other was a case of mastoiditis following an acute otitis media where all objective symptoms were absent. After free incision and the escape of muco-pus in small quantity, a mastoid operation was advised and pus found, deep in the antrum.

*Otitis Media Chronica non-Suppurativa.*—The past season has brought forth a liberal discussion on the use of the Eustachian Bougie. Ducloux (523) enthusiastically advocates the gold electrolytic bougie. Goldstein (515) describes the use and abuse of the Eustachian bougie, comparing the simple elastic bougie favorably to the electrolytic bougie. Pierce (30), in discussing the value of electrolysis in the Eustachian tube, concluded that the electrical bougie possesses no special merit over the simple bougie.

*Otitis Media Chronica Suppurativa.*—At the ninth annual meeting of the American L., R. & O. Society considerable interest was centered about a carefully arranged and well prepared symposium of papers on Otitis Media Suppurativa. In this excellent symposium, published in full in the June, 1903, issue of THE LARYNGOSCOPE, the following papers were presented: Pierce (417), The Etiology, Pathology and Symptomatology (acuta); MacCuen Smith

(424), The Treatment of Otitis Media Suppurativa Acuta; Richardson (429) The Etiology, Pathology and Symptomatology (Chronica); McKernon (434), The Treatment of the Complications of Otitis Media Suppurativa; Dench (450), The Technique of the Radical Operation. A free and liberal discussion followed this symposium, and the whole subject, as published, presents a very complete record of this field in Otology to date.

Rauolt and Specher (553) report a case of otitis media with free otorrhagia in a case of well marked typhoid fever, the hemorrhage occurring simultaneously with a free epistaxis. The authors insist upon the extreme rarity of Otorrhagia in the course of typhoid fever. Dench (412) presents an elaborate discussion and comparison of the various operative procedures for chronic suppurative otitis media, giving first place to the radical operation. Lévy (357) offers an analysis of middle ear disease in tuberculosis, and among other practical features developed in this paper, urges that unusual care must be exercised in the application of the nasal douche in tuberculous patients. Goldstein (572) reports four cases of primary tuberculosis of the ear followed by mastoiditis. Leonard (896) reports a case of tuberculosis of the middle ear with a primary focus in the vault of the pharynx.

*Mastoid.*—Nolan (494) presents a well prepared and cleverly illustrated descriptive paper on the facial nerve in its relation to the radical mastoid operation. Holt (569) records an unusual case of ablation of both mastoids, followed by extreme variations in the temperature of the different parts of the body and of the whole body at different times. McCaw (277) publishes a paper on the treatment of acute mastoiditis and its influence upon audition, claiming that early surgical interference and also the dry method of post-operative treatment seems to influence the function of audition. Claiborne (45) presents two cases of persistent fistula after the mastoid operation, offering, in conclusion, a comparative consideration of repeated surgical interference by curettement versus the expectant treatment by the perforated canula and the medical treatment of granulations. Munger (671) describes an interesting case of mastoid suppuration accompanied by epithelioma. Kipp (41) records a case of sarcoma of the temporal bone. Barck (838) presents a synopsis of 100 mastoid operations, and Keiper (905) sums up the present status of the treatment of mastoiditis. Ray (782) writes on the inefficiency of the Wilde's incision.

*Mastoid Sequellae and Complications.*—Gruening (26) discusses Thrombosis of the Sigmoid Sinus, recording three new cases. In



one case the jugular vein was obliterated throughout its course in the neck, and was ligated just above the clavicle and dissected out to the base of the brain; patient recovered. Case two was in a mastoid of the large pneumatic variety. The sinus was exposed, looked healthy and was not incised. Five days later, with the sudden rise of temperature and patient in delirium, an incision was made through the sinus wall and a large quantity of clear serum was removed. A large red clot was removed from the central end of the sigmoid sinus; patient died two days later; no autopsy. Case three revealed a thin hard cord over surface of dura in region of sigmoid sinus; sinus was opened. The day following the jugular vein was ligated and extirpated.\* Incision was extended downward almost to the clavicle. The dissection was carried upward to the jugular foramen, at which point a firm thrombus was found; patient recovered. Pierce (791) reports two cases of thrombosis of the jugular bulb, with ligation of internal jugular vein following radical operation. In the first case the thrombosis had extended up the inferior petrosal sinus to the circle of Ridley, and thence to the ophthalmic vein. The common jugular was tied on the day following mastoid operation; patient died. The second case occurred in a patient operated on one month previously for acute mastoid trouble without external evidence. At second operation it was found that the antrum had previously been opened up thoroughly. A perisinus abscess was exposed, but there was no external evidence of sinus thrombosis. On recurrence of chill and rise in temperature the sinus was opened the following day. The common jugular vein was tied. The author was confident that the thrombosis had extended up the inferior petrosal sinus, causing secondary thrombosis of the jugular bulb. In his opinion it was not at all necessary to approach the jugular bulb itself through a bony passage. Powers (565) describes a rare anomaly of the lateral sinus, in which the author found it a practical impossibility to enter the antrum without injuring the walls of the sinus. There was complete facial paralysis; the patient died. Temporal bone was removed at autopsy and the sinus was found to extend 0.7 cm. above the mastoid crest, and down to a point within 0.7 cm. from the tip of the mastoid process.

*Cerebellar Abscess.*—Roughton (251) describes the exploration of the cerebellum and drainage of a cerebellar abscess during artificial respiration. The whole operation was performed during the maintenance of artificial respiration, and the necessity for the performance of the latter was abolished as soon as the abscess was opened. Hankins (954) presents notes on a case of cerebellar abscess of otitic

origin; the patient was a female child aged 10, suffering from acute exacerbation of a long standing purulent otitis media. Convulsions, unconsciousness and blindness was the symptom complex. Radical mastoid operation was performed; pus found on opening groove of sigmoid sinus. The intracranial pressure was so great that the walls of the sinus were in apposition, and it was difficult to make out its margins. The bulging dura was opened back of the sinus and on probing pus was found at a depth of about 1 1-2 inches.

Autopsy four days later showed a second and third abscess cavity. J. H. Phipps (955) reports the recovery of a case of cerebellar abscess; the temporo-sphenoidal lobe was trephined, about half an ounce of pus evacuated, and a large drainage tube inserted. The antrum was opened and a quantity of pus and cholesteatomatous mass curetted away. Artificial respiration and chest compression were used. The patient recovered without noticeable symptoms.

*Labyrinth.*—Gronlung (254) describes a case of acute labyrinthine deafness to speech in a 15-year-old cabin boy. The impaired hearing developed simultaneously with sudden gastritis and headache; the patient appeared stupid and showed partial loss of equilibrium. A year later these conditions disappeared and he was again able to understand short sentences. Dundas Grant (683) presents a case of deafness due to myxoedema. There was a combination of obstructive and nerve deafness; the patient's physiognomy suggested myxoedema; examination showed the thyroid gland quite impalpable. Improvement followed the administration of thyroid tablets. M. Alt (957) reports three cases of disease of the acoustic nerve due to the use of alcohol and tobacco. In the first case the deafness presented the typical symptoms of labyrinthine disease; this disappeared in two months of total abstinence from drink. The other two cases were of neuritis, with pronounced deafness and intolerable tinnitus, due to tobacco; patients cured within six weeks after tobacco was forbidden.

*New Instruments.*—Valentin (332) has devised an instrument called the salpingoscope, arranged on the principle of the cystoscope, which is introduced through the inferior nasal meatus and gives a very satisfactory and clear view of the pharyngeal orifice of the Eustachian tube. The whole of the naso-pharynx may be seen as the instrument is turned up and down and from side to side. One Eustachian opening can be well seen by means of the salpingoscope introduced through the opposite nostril; this renders it of service in cases where difficulty is experienced in introducing the catheter in the affected naris.

*New Therapy.*—Bates (164) offers a preliminary report in a new treatment for deafness from chronic catarrh of the middle ear. This treatment is applicable in conditions in which the conducting apparatus alone is affected. The object is to obtain room for treating the region of the oval window. He chisels away the superior and posterior walls of the external auditory canal, continuing as in the Stacke operation. The membrane and ossicles are then removed and the cavity dusted with iodoform powder. He reports good results. Baratoux (167) reports a case of a bullet in the ear which he located by radiography and removed successfully. Bentzen (174) reviews the different methods of treatment of deafness and describes his form of treatment of chronic middle ear catarrh. He reports good results from the use of electro-vibration, which he applies only in cases where the bone conduction is approximately normal. Beck (368) gives an extensive report of one year's experience with the superheated medicated air in diseases of the ear and nose. He has devised an air heater which is attachable to an incandescent lamp, and so arranged that volatile medicinal substances, such as formalin, menthol and chloroform can be passed through the heater, at any desired temperature. He has applied this treatment to all forms of otitis, acute salpingitis, furunculosis, and eczema of the external auditory canal, with varying results; fourteen cases of otitis media catarrhalis chronica, of from one to ten years' duration, with little improvement; in fourteen cases of otitis media suppurativa chronica he reports marked improvement; in eczema the results were gratifying, but in most forms of tinnitus and for the relief of deafness, the condition was not improved, but was frequently aggravated. Bellevue (414) describes a method of local anesthesia for the extraction of polypi from the ear. He injects 1 c.c. of a 5 per cent solution of cocaine into the polypus which is to be removed, and in two minutes the tumor may be extirpated without pain, most of the cocaine solution being removed with the polypus.

*Miscellaneous.*—Ewing (857) reviews the progress of Otology in fifty years. In summing up he concludes that the advances hinge almost entirely upon antisepsis, pathology, bacteriology, histology and operative technique, out of which has grown perfection in diagnosis. Kerrison (155) reports a case of respiratory tinnitus. The symptom was produced by both inspiration and expiration. He was able to stop the noises, but they would always return upon the act of swallowing. The author believes the condition to be the result of a mild congestion or inflammatory process affecting the naso-pharynx and the cartilaginous portion of the tube, leaving the

walls of the latter rigid, thus preventing it from assuming its normal apposition. Oppenheimer (413) contributes a scholarly paper upon the venous system of the temporal bone and its relation to the complications of mastoid disease. He believes that many cases of sinus phlebitis, brain abscess and meningitis are directly due to infection by way of small venous channels of the temporal bone. Stirling (282) discusses the question of nasal treatment for the cure of diseases of the ear. Gifford (333) argues that it is the duty of the ear surgeon to operate for brain abscess, a large per cent of which, he claims, are due to ear disease. Phillips (804) presents a paper on Life Insurance and Diseases of the Ear. He is of the opinion that too little attention is paid by insurance examiners to chronic suppurative diseases, many of which require radical operative interference. Braislin (806) reports a case of teratoma of the ear, the tumor completely blocking the auditory canal. It was removed through a Wilde's incision, being attached to the periosteum of the bony canal. Brose (811), in discussing the eye and ear complications of measles, reviews the different opinions of various writers as to the cause of the middle ear complication, the majority believing that it results from extension of the inflammation from the nasopharynx by way of the Eustachian tube.

#### RHINOLOGY.

Wright (127), in his Critical Review, enters exhaustively into the subject of accessory sinus disease, the anatomical anomalies and variations that predispose to it and its relation to ozena, with a review of the work upon that subject up to the present time.

Swain (756), in his article on The Arch of the Palate, presents an interesting discussion on the significance of the palatal arch in septal deviations and deformities, and the conditions and diseases which influence it.

*Hypertrophic Rhinitis.*—Shurley (337), in an able article on the etiology of hypertrophic rhinitis, cites, among the chief causes, (1) lack of proper development, (2) exanthemata, (3) altered secretions, (4) unhygienic surroundings and (5) improper diet and dress.

Schadle (274) says "there is but one method by which hypertrophic rhinitis can be cured, and this is surgical intervention." In the intumescent form he recommends chromic acid.

*Atrophic Rhinitis.*—Kyle (172) reviews the subject from an etiological standpoint and selects the neuropathic theory as expressive of his opinion. Moure (698) discusses atrophic coryza, its origin, progress, final results, treatment, and distinguishes between it and ozæna.

In the treatment he dwells upon the value of paraffin injections, and, together with Brindel (701), reports the results of 70 cases thus treated. Vaquier (837) reports six cases of ozena which made its appearance in the children of one family. He believes in the specificity and contagiousness of ozena, and recommends, besides proper prophylaxis, the injection of paraffin as suggested by Moure. Mackie (163) believes that ozena is associated with sinus or other intranasal suppuration, as affirmed by Michel. Yonge (89) reports the treatment of ozena by cupric electrolysis. He reports one death, two permanent cures, and five in which improvement was marked.

*Accessory Sinuses.*—Mosher (177) contributes an excellent monograph on Anatomy of the Sphenoidal Sinus, and the Method of Approaching it from the Antrum. His anatomical descriptions are thorough and concise, well illustrated by plates and should prove a valuable reference in sinus operations. Myles (293) presents a case upon which trephining and curettage of the sphenoidal sinus had been performed. It was followed by profuse secondary hemorrhage, requiring ligation of the external carotid. The patient improved. Bronner (303) reports a case in which suppurative ethmoiditis and frontal sinusitis followed the removal of nasal polypi. Cerebral complications followed and patient died. Gavella (321) reports twenty-two cases of sinusitis and describes his treatment. Woakes (511) writes a paper on The Pathology of Ethmoiditis. He describes the pathological changes through which the tissues pass, from the first appearance of the primary inflammation to the final disintegration of the osseous structures. Berens (554) presented a patient with a history of twelve years of suppuration, the only accessory sinus remaining free being the left frontal. It dated from an attack of scarlet fever. Goris (571) describes a radical and rapid cure of chronic frontal sinusitis, the entire process being complete in six days. Moore (627) reports a case of empyema of the frontal sinus with complications. It appeared as a swelling of the right upper eyelid. Patient had lost 65 pounds in weight. He found extensive destruction of the inner table of the skull, yet no meningeal symptoms resulted. The necrosed bone was removed, gauze drainage through the nose and external incision, discharging the patient as cured in two months. The pus first discharged near the inner canthus of the right eye.

*Naso-Pharyngeal Fibroma.*—Quite a number of interesting cases of these tumors have been reported. They are not a rare condition, but often are quite difficult to remove. Tilley (80) exhibited a vascular naso-pharyngeal tumor which required several attempts, and finally necessitated a combined operation through the soft and hard

palate. Harris (140) reports a case which resisted several attempts to remove by snare operation. Donelan (308) presented a specimen of sessile fibroma which he had removed with forceps, its small pedicle being attached to the vault of the pharynx. Stucky (861) contributes a paper on naso-pharyngeal fibroma, with technique of operating and exhibition of specimens. He has devised a new fibroma forceps, which seems to meet requirements.

*Tonsillar Affections.*—A large per cent of the literature on nose and throat diseases refer to the tonsillar tissues as the primary foci of infection or a subsequent complication. A valuable review of the anatomy of the tonsil, bearing chiefly upon its embryological development and its anomalies, is contributed by Mosher (817) in his article, *The Tonsil at Birth*. Much of his work is original and is well presented. Forscheimer (173) refers to the tonsil as an active port of entry to all infections. Sisson (222) writes on *The Hypertrophied Faucial Tonsil*, and gives the morbid histology of the submerged tonsil. Smith (231) reports a tumor of the tonsil which closely resembled a varix or angioma. Margarey (414) reports a case of septic tonsillitis which produced an infective thrombosis of the cavernous sinus and death. Theisen (607) reports a case of Lipoma of the Tonsil. He considers it the sixth such case on record and classes them as congenital. Deile (807), a few months after Theisen's report, records another lipoma of the faucial tonsil. Hopmann (808) reports three cases of polypi of the tonsil. Richardson (835) presents a case of severe gangrene of the tonsil, following quinsy. Murray (912) presents a paper on Chronic Tonsillitis, etiology, symptomatology, pathology and treatment are all considered, laying special stress upon proper care of teeth and mouth as a preventive. Bulson (219) reports an alarming hemorrhage following incision of tonsils and adenoids. Myers (217) uses the cold snare in tonsillotomy. Cheatham (162) reports seven cases of chancre of the tonsil, seen within eighteen months.

*Malignant Tumors of the Naso-Pharynx.*—Quinlan (346) recites the history of these malignant growths from 1836 to the present time. The difficulty in diagnosing a malignant from a benign naso-pharyngeal tumor lies in the fact that the ordinary naso-pharyngeal polypi, or rapidly growing fibromata, possess a sort of clinical malignancy which requires the aid of the microscope to differentiate. The treatment of these growths he divides as follows: 1. Injection of various substances into the tumor. 2. Electrolysis. 3. Extirpation. 4. Ligation or excising of the nutrient arteries. 5. Use of the chemical rays. He closes by saying: "The only recourse is surgery,



and the longer the experience of the specialist, the more he is apt to say, 'Shun delays; they breed remorse.' Farr (294) presents a case of sarcoma of the nose. Baron (308) shows a case of lympho-sarcoma of eight months' duration. Curettage had relieved the symptoms, but the growth had returned. Waggett (391) exhibits a patient whose only symptoms were pain and tinnitus in the right ear. A growth the size of an egg yolk involved the right Eustachian eminence. He pronounced it malignant. Bronner (395) shows a specimen of columnar-celled carcinoma of the naso-pharynx, taken from a man aged 63. Kammerer (557) reports a case of epithelioma of the tonsil involving the pharynx. Price-Brown (621) reports several cases of sarcoma of the nose, presenting specimens and micrographs. He emphasizes the clinical similarity between this form of tumor and the benign fibroma. The technique of his operation is described in full. Bourgeois (734) dwells upon *primary* malignant tumors of the nasal fossæ, and Bicknell (810) reports three cases of intra-nasal sarcoma. One patient died, one is cured, and the third slowly improving.

*Unusual Cases.*—Mygind (163) reports a case of sudden collapse, accompanied by suspension of respiration and cyanosis following adenotomy. Ewing (57) reports an interesting case of tonsillitis, localized in a supernumerary tonsil. Locoarret (248) reports six cases of myxomatous mucous polypi in infants. Wright (378) describes a case of rapidly recurring bleeding polypi of the septum nasi in a pregnant woman. Hall and Lyons (567) report each a case of death from the bursting of a tonsillar abscess. Steward (570) reports the death after removal of tonsils and adenoids in a hemophilic child. Porcher (614) performed immediate tracheotomy for a foreign body with success.

*Technique.*—McKernon (97) describes the technique of the operation for congenital cleft of the palate. The successful result in twenty-six consecutive cases speaks well for his plan of procedure. Douglas (342) advances a new operation for rhinoplasty and describes the new instruments and appliances used. While not dwelling especially on any particular technique Pyncheon (497) has contributed an excellent paper on Principles of Rhinologic Practice. He reviews the field thoroughly and brings out many points of value to the specialist. Goldstein (515), in his article on Use and Abuse of the Eustachian Bougie, gives the technique which he follows, and cites the necessary precautions in its use. It is as scientific to know when not to use the bougie as to be able to pass it faultlessly. Hirschmann (810) describes endoscopy of the nose



and its accessory sinuses. Roe (897) explains the removal of obstructions and cicatricial contractions of the nose by the *plastic* method. Curtis (737) contributes an able monograph on The Technique of Maxillary Sinus Operations. His technique has been formulated from some fifty cases upon which he has operated.

*Theraphy.*—Barnes (172) describes the methods of using argyrol in diseases of the nose and throat. Poli (322) advances a new treatment for intra-nasal synechia. Beck (368) advocates superheated medicated air in diseases of the nose and ear. Moore (533) treats some cases of asthma by removal of the middle turbinate, with considerable success. The therapy of hay fever has received a new impetus through the discovery of an antitoxic serum by Dunbar and its application by him, Semon and others. Bailey (917) reviews the work done by them. The following year will witness either its establishment as a therapy of much value or its classification among the many unsuccessful attempts to control this aggravating affection. Stubbart (558) presented a paper on the value of X-ray treatment in nose and throat diseases. Its value in malignant neoplasms of the nose and naso-pharynx is still questioned. Lynch (161) records his experience with paraffin as a subcutaneous injection for the correction of nasal deformities, describing the technique. Smith (261) contributes an article upon the same, as does also Downie (733), with good results. Hurd (555) reports a case of instant loss of vision in the right eye, following paraffin injection for nasal deformity. Curtis (294) reports a case of nasal deformity from its use, the injection having been made by one of the many "beauty" doctors.

*New Instruments.*—Many new instruments have been admitted into the field of practice during the year just past, only a few of which can be reported in the limited space allotted us. Fein (143) presents a new curette for adenoids. Coakley (143), soft steel probes; Mayer (143), a lip retractor, useful in draining the antrum and in operations in this region; Pyncheon (226), a new mechanical saw for intra-nasal operations, attachable to a flexible shaft and the dental engine; Buckwalter (230), a new post-nasal applicator; Pegler (382), a septotome for septal deflections; Phillips (557), a new operating table; Smith (703), a folding head band; Jackson (703), an emergency thyrotomy canula, turbinotome, adenoid curette, mastoid chisels, improved trephine and transillumination lamps; Peters (871), a new tonsil snare, and Luc (922), forceps for the removal of the ethmoid septa *en masse*.

## LARYNGOLOGY.

While the year just past has presented no startling discoveries, the tireless energy and progressive spirit of those following this branch of work is fully manifested by the many able articles that have been published, the increased attendance at the laryngological societies all over the world, and the deep interest displayed thereat, the advances in laryngeal surgery, and the numerous therapeutic suggestions of varying value.

The tenacity with which these specialists combat the malignant and constitutional diseases which attack the larynx, despite the disappointment and discouragement of years past is deserving of much praise, and the hopelessness of these conditions is being fast refuted by the statistical tables which these earnest workers are compiling from their daily clinics.

In hastily reviewing this last year's progress we have endeavored to be brief, touching only upon those points that may be of interest to our readers. While we are well aware that the zenith of our advance is still far distant, the progress of each succeeding year will, sooner or later, establish this specialty as one of utmost importance and promise.

*General Anaesthesia in Laryngeal Operations.*—In spite of the few fatalities resulting from the use of chloroform it no doubt retains first place for both long and short operations, where the local method is inapplicable.

Bromide and chloride of ethyl, and nitrous oxide gas are much used in short operations.

Brown Kelly, of Glasgow, discusses at length (*British Med. Jour.*, Aug. 1902) the efficiency of bromide of ethyl, its chief value being its rapid action and the comparative absence of disagreeable after-effects. Only a small amount is necessary and no special apparatus is required. Rigidity of the lower jaw is the one disadvantage, appearing but seldom. Chloride of ethyl, now being used by some as a general anæsthetic, is administered in the same manner as the bromide, on a linea cone, and, although more transient, it is free from that unpleasant feature, contraction of the jaw muscles.

Bennett (262) presents a very able discussion upon general anæsthesia in operations involving the upper air passages. Every physician should be thoroughly conversant with the good and evil of each drug thus employed, and select for administration that one which in each individual case is indicated by the condition of the patient, and the nature of the operation to be performed.

*Local Anaesthesia in Laryngeal Operations.*—Cocaine muriate has not yet been dethroned. The chief change in its use is a diminished dose, a .1 to 1 per cent solution now being found sufficiently strong, in tracheotomy, etc., where the tissues are properly infiltrated. For local application to the mucosa of the larynx, from 4 to 8 per cent solution is used. Many surgeons now combine with the cocaine solution equal parts of a 1-1000 solution of adrenalin chloride, which blanches the mucosa, thus reducing the hemorrhage to a minimum, and at the same time exerts such an influence over the heart's action that the probability of shock is very materially lessened. Bodine (257) writes an article on the employment of cocaine in local anaesthesia of the upper air passages, containing many very practical and useful hints, and is well worth careful perusal. Ligowsky (166) suggests heroin in 5 per cent solution as a local laryngeal anæsthetic of especial value in infiltration of the larynx.

*Tuberculosis of the Larynx.*—The progress in the therapy of this dread disease does not justify a very strong hope that we may ultimately conquer it. Vivid accounts appear nearly every month of magic cures, but the staid members of the profession are persuaded by their own disappointing experiences to give little credence to such reports.

The perseverance, nevertheless, will continue, and no progress in therapy would be more welcome. Sharpe (568) encourages the policy of leaving the larynx alone. He administers creosote internally in ascending doses, morphine for relief of cough, proper attention to diet and dress, and a change of climate when infiltration is present. Godsken (807) reports 48 cases of laryngeal tuberculosis during pregnancy and labor. The fatality is great. He favors induction of abortion if the process is active and the woman's condition permits. Late in pregnancy or during labor, tracheotomy is often necessary to prevent suffocation. Wyatt Wingrave (634) presents a case of tuberculous granuloma of the larynx, in which physical signs were almost absent. The diagnosis was made on a history of increasing huskiness, a slight irritating cough, and a small circumscribed elevated granular patch on the right ventricular band. He also reports (635) a case of lupus appearing as a nodular ulceration along the edges of the epiglottis, with no physical signs, but a family history of phthisis. Harris (376) presented at a meeting of the New York Academy of Medicine, a case of tubercular thickening and ulceration of the larynx, with almost total loss of the epiglottis. Price-Brown (707) reports a case of tubercular laryngeal stenosis in which the infiltration became so marked that tracheotomy was performed. He

hopes later to relieve the stenosis by use of graduated tubes, wearing the tracheotomy tube meanwhile. Theisen (708) reports a case of laryngeal tuberculosis complicated by an attack of la grippe, such distressing dyspnoea following that tracheotomy was demanded. During the operation an abscess, connected with the trachea low down, was opened, the patient dying later of septic pneumonia. Stubbert (558) reports a case of laryngeal tuberculosis complicating pulmonary tuberculosis, treated by the X-ray. Little benefit was obtained. In a case of tonsillar tuberculosis he announces marked improvement. Levy (225) presents an excellent article on the effect of climate on laryngeal tuberculosis, with special reference to high altitudes, which, he avers, tend to retard its development from the pulmonary attack, from 48 to 62 weeks. The attempts being made to prove or establish the efficacy of the X-ray and radium in laryngeal tuberculosis are highly commendable.

*Malignant Disease of the Larynx*—"It is impossible to ignore the fact that malignant disease is on the increase, and there is every evidence to warrant the conclusion that it is not only an apparent increase, but a real one." Thus begins a valuable contribution of Jonathan Wright (657) relative to malignant disease. He lays especial emphasis upon the assertion that only one procedure is justifiable, upon the discovery of a laryngeal neoplasm, viz: extirpation, total or partial, and examination microscopically, without waiting for ever patient nature to inform us of the danger by the unmistakable signs of malignancy. His article is a thorough report of the present view of able laryngologists, with such criticisms and assertions as one of his extensive experience can make. Dundas Grant (490) reports a case of disease of the larynx of doubtful diagnosis, showing the difficulties often encountered therein. Herbert Tilley (152) presents an interesting case of advanced and inoperable epithelioma of the epiglottis, with secondary infection of the cervical glands. It was later removed by morcelllement, through the mouth, improvement resulting. Atwood Thorne (643) gives a report of laryngeal epithelioma which had been treated as a specific growth, with improvement up to a certain point, at which it has since remained stationary. There was no doubt a specific complication. Chambers (60) presents a case of epithelioma upon which he had performed complete excision of the epiglottis. Chappell (62) also reports a similar case in which the detached epiglottis had attached to it a sarcoma. Harris (62) reports a case in which removal of the epiglottis was performed under cocaine, edema and death following. Hartley (250) contributes a paper on laryngectomy for malignant disease. He com-

compares the procedure with thyrotomy, pointing out the advantage of each and furnishing a statistical table with reference thereto. H. L. Nietert (91) describes a total laryngectomy performed by himself upon a patient in extremis, with very satisfactory results. Gleitsmann (733) reports a subglottic tumor removed endolaryngeally with a galvano-cautery snare, under cocaine and adrenaline solution. Five months later patient was entirely cured and no sign of return, or anomaly of the part. Sanial (334) reports some rare cases of sarcoma of the thyroid with secondary growths and laryngeal complications. Scheppegeirell (254) reports a case of cancer of the larynx cured by X-rays. 80 applications in all were made, and tumor, with ulcerations, had entirely disappeared. The diagnosis of the growth was made from the clinical history and laryngoscopic examination. Bryson Delavan (416) also reports the results of treatment by X-ray, states that to him it has proved of doubtful value. One of his cases improved. The masses become smaller and tend to disintegrate and soften. He suggests its application to inoperable cases, but if the disease is localized favors prompt surgical intervention.

The probability of the discovery of a therapeutic agent that can be relied upon to cure these malignant laryngeal tumors is as yet remote, but the recent improved surgical procedures are indeed encouraging.

At the seventy-first annual meeting of the section of Laryngology and Otolaryngology of the British Medical Association, held at Swansea, July 28-31, 1903, a discussion on the operative treatment of malignant diseases of the larynx was held. Sir Felix Semon (879), that eminent authority, discussed thoroughly all the accepted methods in use by different surgeons, "including the intralaryngeal method, thyrotomy, partial extirpation of the larynx, total extirpation of the larynx, sub-hyoid pharyngotomy and palliative tracheotomy.

He closes by saying, "Let me once more express my conviction that the operative treatment of disease of the larynx, if pursued on the lines which are at present generally followed by British observers, will yield the more satisfactory results, the sooner the diagnosis is made and the more thoroughly operation is carried out."

Professor Gluck (928) whose brilliant achievements in laryngeal surgery are familiar to all laryngologists, followed Felix Semon's discussion by an exhaustive report on Total Extirpation of the Larynx, Epiglottis, Resection of the Pharynx and Extirpation of the diseased Lymphatics, Extensive Tumors of the Larynx, Epithelioma of the Larynx and Thyrotomy. Any attempt to review these papers hastily would result in failure, for both must be read to be appreciated.

*New Instruments.*—Stein (362) contributes an article on the removal of a pin from the larynx. The position of the foreign body was so peculiar that the usual methods failed to secure it. He succeeded only after he had improvised a special instrument, described on page 364.

Myles (62) has devised a new laryngeal snare of special value in papillomatous degeneration of the mucosa beneath the vocal cords. Jackson's article (691) on "Presentation of Instruments," describes an emergency laryngotomy canula. Bishop (788) illustrates four laryngeal instruments.

*Miscellaneous.*—Potter (79) reports a case of herpetic ulceration of the larynx. Grant (153, 85, 490) describes three cases of laryngeal paralysis. Coffin (140) presents one of pemphigus of the larynx. Delavan (413) describes a case of ankylosis of the crico-arytenoid articulation. Foster (365) contributes an article on laryngeal paralysis due to aortic aneurism. Steward (399) shows a patient affected with clonic contractions of the palate and adductors of the vocal cords. The gait of the patient was ataxic but no incoordination of the upper limbs. Grant (489) reports a case of immobility of the left vocal cord, attributable to bronchocele. Resection and extirpation of left lobe and isthmus gave satisfactory result. Kelson (724) reports a case of laryngeal fistula following a razor wound.

Ward (122) writes on "Perichondritis of the Larynx," with cuts, and cites several interesting cases and his method of procedure in same. Curtis (271) an acknowledged authority upon acute laryngitis of singers, describes his methods of treatment in such conditions, an accurate knowledge of which is of much value to the laryngologist. Johnson (777) writes an interesting article on "Subglottic Tumors of the Larynx," describing the embryological conditions that predisposes, and recounting the history of the research and original work in this line.

The new text-books written in the past year bear evidence of the steady progress in laryngology and justify strong hope for the future.

M. A. G.

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## THE DEPENDENCE OF AURAL AFFECTIONS UPON THE NOSE AND THROAT.

BY H. E. SMYTH, M.D., BRIDGEPORT, CONN.

It is customary to find in text books upon the nose and throat, but a rather indefinite allusion to the significance of nasal or nasopharyngeal diseases, as an etiological factor in aural affections. Authorities upon the ear, on the other hand, are perhaps slightly more definite, and devote a chapter to the upper respiratory tract. Then occasionally we see quite a radical statement on the subject, as the one expressed by Mayo Collier (*Lancet*, 1898, page 991), who says: "I never find chronic deafness, with or without noises in the head and discharges from the ear, unassociated with nasal obstruction."

In order to arrive at definite conclusions from my own practice I have tabulated five hundred private records, including cases of disease of the nose and naso-pharynx as well as those of the ear, thinking thereby to obtain a fairer estimate. I have excluded all cases showing but a slight retraction or dullness of the tympanic membrane with no other ear symptoms, and also all cases of disease of the upper respiratory tract, with no involvement of the nose nor nasopharynx.

The conditions are taken as they are found, without regard to the statements of the patients, which are often unreliable to say the least.

Influenza and other specific infections are classed under their pathological results.

No especial selection of the cases was made, and where more than one lesion was present, as very frequently occurred, the more important affection is given, although in some few instances the same case may appear more than once.

Of the 500 cases, 209 consisted of ear affections accompanying disease of the nose or naso-pharynx, 93 of ear affections unaccompanied by such disease, and the remainder, or 198, of nose or nasopharyngeal affections without involvement of the ear. It will be seen that more than two-thirds of the ear cases accompanied disease of the upper respiratory tract, but on the other hand, an aggregate of the 93 ear cases which were not a result, and the 198 throat cases which were not a cause, constituted three-fifths of the 500. In other words, in more than half the cases, the ear and throat affections were independent of each other.



The following table shows the number of times each nasal affection occurred, and the relative frequency of ear involvement.

Lesion.	No. Cases.	Ears Involved.
Hypertrophic rhinitis .....	63	20 times.
Ridges and deviations .....	99	44 times.
Polypi .....	23	9 times.
Atrophic rhinitis .....	39	17 times.
Accessory sinus disease .....	7	1 time.
Total .....	231	91 times.

It will be seen that about 40 per cent show ear involvement.

In the cases where disease of the post-nasal space predominated the results were somewhat different, as the succeeding table will show:

Lesion.	No. Cases.	Ears Involved.
Naso-pharyngitis .....	34	26 times.
Adenoids .....	99	57 times.
Ulcerations and tumors .....	5	4 times.
Total .....	138	87 times.

About 64 per cent showing ear involvement.

Nothing fulfills the condition of simple alteration of the air current better than spurs, ridges, and deviations of the septum, and a more careful consideration of these cases may be interesting.

As has been stated, 44 of the 99 cases were accompanied by ear involvement, the affection occurring on the same side 16 times, the opposite side, 8 times, and on both sides 20 times; or in about 16 per cent of all the cases the ear on the same side was alone involved.

As to the possibility of ear affections being caused by a simple alteration of the air current, without accompanying secretion and changes of the mucous membrane, I have very grave doubts.

When the nose is sufficiently blocked to seriously interfere with nasal respiration, the tendency to ear affections is much greater than in simple alteration of the air current.

There is more often secretion or swelling present in the naso-pharynx, and the violent efforts to expel mucus through the occluded nostrils easily forces it into the Eustachian tubes, while the powerful inflations of the middle ear, produce stretching and relaxation of the tympanic membrane, deafness and disease often resulting. When any specific source of infection is present, the ear is thus easily infected.

In fact, the presence of virulent bacteria seems to be the important factor, rather than the blocking. A patient may have both nostrils

occluded with polypi for months with impunity, but few physicians care to leave a plug in the nostrils for any length of time, lest infection ensue.

In pure mouth breathing there should be very little rarefaction of the air in the naso-pharynx, for the mouth is quite capable of supplying all the air which the larynx can accommodate, and consequently there is no tendency to produce a vacuum.

Where continual effort is made, however, to breath through seriously occluded nostrils, there is unquestionably a decided tendency to rarefaction on inspiration, but as the reverse is true on expiration, and as the Eustachian tubes are closed in the majority of individuals except during the act of deglutition, it would probably cause no direct injury to the ears. In fact, practically the same effect must be produced, by the insufficiency of normal nostrils during violent exertion.

The danger to the ears in nasal obstruction is due to the secondary conditions in the naso-pharynx, and to the fact, as Politzer has shown by his "ear-manometer" (*Diseases of the Ear*, Page 63) that the air in the tympanic cavity is rarefied by each act of deglutition when the nostrils are closed, and in this way the so-called "dry cupping" with its injurious results, of which we read so much, is produced.

The ears may be directly affected by diseases of the naso-pharynx, and, as my records show, the danger is much greater than in nose lesions. I was somewhat surprised to find so many cases of adenoid vegetations without ear symptoms, and explain it by the fact that in many cases the growth was small, or when large, often centrally located, not interfering with the ventilation of the middle ear.

Of all middle ear affections, acute inflammation has seemed most frequently, and so-called sclerosis least frequently, dependent upon diseases of the nose and throat.

The conclusions arrived at are as follows:

1. That while nasal diseases predispose to aural affections, there is less direct danger than is generally supposed.
2. That excepting specific infections, the greatest danger is from diseases of the naso-pharynx.
3. That many of the ear affections accompanying nose and throat disease may be due to a general tendency, rather than a direct extension.
4. That to successfully treat aural affections, it is a wise precaution to carefully examine the nose and throat, and correct as far as possible all pathological conditions.

## AN INTERESTING LARYNGO-PHARYNGEAL TUMOR.\*

BY HENRY GARNSEY OHLS, M.D., ODELL, ILL.

The subject of this report, "A. R.," was an electrician and manager of a telephone exchange. His age was 29½ years at the time he was suffocated by a large fibroma early on Easter morning, March 30, 1902. He was a native of Ohio, his parents both being French born. At the age of 4 years he had some kind of growth on the left side of the neck to which caustic plasters were applied, leaving a very large mass of scar tissue, adherent to the fascia and interfering with the rotation of the head. From early childhood till the age of 7 or 8 he was subject to severe attacks of croup.

In 1898, Dr. F. M. Tombaugh removed the left tonsil which was quite large, and the uvula which was so long that it caused constant irritation of the fauces. The doctor recently stated that there never was anything, so far as he knew, to suggest the presence of a tumor in the throat. Members of the family, however, maintain that there was trouble in swallowing for quite a long time previous to 1898, gradually increasing until he acquired the habit of throwing back his head when swallowing. The only dyspnoea (previous to the final catastrophe) remembered by the family, was a sudden momentary attack that caused him to fall to the ground after a run while out hunting about 4 years ago.

In June, 1899, Dr. Tombaugh advised removing several tubercular cervical glands and loosening the subcutaneous adhesions that prevented free rotation of the head. He accordingly with Dr. Wm. E. Morgan, did the operation at Mercy Hospital, Chicago, June 22, 1899. An interesting observation was the discovery of a hernia of cirrhotic lung tissue in the field of operation. Dr. Morgan states in a recent letter that the progress of the operation was an exceedingly anxious one as the patient was blue and dyspnoeic with rapid pulse and mucous obstruction from beginning to end, while chloroform acted no better than ether. At the same time Dr. Morgan emphasized the absence of the *usual* local signs of laryngeal choking. As to the symptoms previous to the operation he writes, "that the main complaint was a feeling of fulness in swallowing." This feeling of obstruction to his esophagus, he located low in the neck, and it made him afraid to swallow solids because it always filled him with appre-

\* Read before the sixth semi annual meeting of the Livingston County Medical Society, November 5, 1903.

hension of suffocation, to make the effort. He also feared to lie down except in one position (flat on his back with his head as low as his body), because of the same apprehension. He did not have the usual signs of an obstruction of the larynx but rather such as would be associated with neurosis of the laryngo-pharyngeal group of muscles.

From that time our patient's health remained good except for his peculiar method of swallowing, to which neither he nor his friends seemed to attach any significance. I am informed that he avoided sharp acid fluids like canned cherry juice, doubtless finding them difficult to swallow.

He had a powerful physique. He was about 5 feet 3 inches in height and weighed 185 pounds. He was, therefore, of short, stalky build and had a short thick neck. Aside from his profession of electrician he was a successful amateur florist on a small scale. Having a tenor voice of much sweetness and some cultivation he was in demand for church music and had been singing in the Congregational church choir for a year or more. Easter eve we were practicing the Easter music together and his voice was as clear and strong as usual, though he remarked that he was not feeling well and thought he had a "cold." I noticed that his pulse was strong and slow.

At 2 a. m. Easter, I was called in haste and found him on his hands and knees in bed struggling for breath. His color was somewhat cyanotic. He was only able to gasp, "tonsil" and "tube." By digital examination I could only make out that there was a large movable mass resting on the opening of the larynx. I tried for a very few moments to manipulate this mass and the tongue to relieve the dyspnea. As he was rapidly becoming comatose and no manipulation availed, I performed a rapid tracheotomy above the isthmus of the thyroid with my penknife and introduced the rubber tube from my stethoscope into the trachea. Artificial respiration with blowing into the tube was tried for some time without resuscitating him. Soon after I entered the chamber, in his violent struggles for air, he evidently ruptured a bloodvessel in the air passage as the blood flew from his mouth several feet. I think free internal bleeding doubtless contributed to his very rapid death.

Soon after death I found a tumor extending into the naso-pharynx but attached by a narrow pedicle to the interarytenoid fold or possibly to the mucous membrane on the posterior (external) surface of the cricoid cartilage at the point of attachment and origin of the esophagus. The tumor was the shape of a flattened pear,  $2\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$

inch in its greatest dimensions. I had not the slightest difficulty in removing it post-mortem with long curved scissors after grasping it with vulsellum forceps. As the family objected to any mutilation I could not remove; with the tumor, the structure to which it was attached, so as to positively identify the latter. It was, however, within the limits indicated. The growth could probably have been readily and safely removed in life, with the cautery snare. The patient never suspected, as far as his friends are aware, that he had a tumor, but he attributed his dysphagia to a moderately enlarged tonsil, as his last word indicated. I believe the only attempt to examine his larynx with the laryngoscope was that made at the hospital. That was not successful as the effort to use the mirror brought on the dyspnoic sensation and very rapid heart action. I am not certain that an ordinary examination with the mirror would have disclosed the tumor which apparently hung down in the esophagus except when vomiting or other mischance caused it to be thrown over the opening of the larynx.

Prof. Ludwig Hektoen reports the tumor a fibroma, and a most interesting specimen, considering its location and attachment. His pathologic report is as follows:

The tumor is brought in formalin. It is a pendunculated tumor of an oblong, somewhat ovoid shape with the attached end tapering or "drawn out." It is 5.1 cm. long; 2.5 cm. wide at its widest point, and 12 mm. thick. The attached end is very small, measuring 5x2 mm. The tumor has an ashen gray color with a few black spots of a very irregular outline. It is rather firm to the touch. The surface is uneven and in some areas quite rough. *Microscopically*, the tumor is seen to be surrounded by a layer of stratified squamous epithelium. In some areas there are practically no papillæ while in others they dip down into the tumor at various depths, but never very far. Beneath this epithelial covering the tumor is composed mainly of mature connective tissue which is greatly infiltrated with leucocytes, most of which are polyneuclear. This connective tissue has no definite arrangement, the fibres running in various directions. There are areas of more or less homogeneous intercellular substance. The connective tissue cells are not very abundant. Most of them are spindle shaped and compressed, but some are stellate in outline. The tissue seems to have a loose arrangement and in it are quite large sinuses with thin walls. Some of these are filled with blood, the red corpuscles of which are very pale. In some of the others are serum and more or less polynuclear leucocytes. There are still others in which are found plugs of loosely arranged connective tissue in the

meshes of which are polyneuclear leucocytes. These plugs have a somewhat irregular outline and some of them are connected with the wall of the sinus. In some of the medium sized blood vessels are similar plugs of connective tissue. In these the connective tissue is more compact and they have a more regular, nearly circular, outline. In some cases connective tissue fibres can be seen running into the plug, in the lumen of the vessel, from the vessel wall. No fibrin can be demonstrated in any of these by Weigert's fibrin stain. They are probably old thrombi. In some areas of the section are seen a few plasma cells. In some areas are a large number of small, thick walled blood vessels the walls of which are infiltrated with leucocytes.

*Diagnosis:—Fibroma.*

Prof. Hektoen in a personal communication reported a death at the Cook County Hospital in 1901 from suffocation due to a tumor which sprang from the naso-pharynx.

Not having the resources of the Newberry Library at hand I am unable to present a review of the literature. As far as the location of the tumor is concerned it seems to coincide very closely with one observed by Dr. Lambert Lack,<sup>1</sup> who presented his patient, a woman æt. 39, before the meeting of the Laryngological Society of London, April 12, 1901. His patient had occasional dysphagia for 15 years. This was worse for the past 3 months and her voice had been weak. In this case the growth could be seen with the laryngoscope projecting from the posterior surface of the arytenoids on the right side, and it grew from the posterior surface of the cricoid cartilage. Suggestions as to diagnosis and treatment were requested by Dr. Lack who stated that in his experience the case was unique. Sir Felix Semon considered it a very interesting and rare case and advised its removal by the snare internally. Dr. StClair Thomson thought it should be described as an œsophageal growth. On the other hand, Dr. Jobson Horne thought it sprang primarily from the arytenoid region and he regarded it as a laryngeal and not an œsophageal growth. At the next meeting of the society Dr. Lack reported<sup>2</sup> that he had removed the growth, a soft nodular mass about the size of a pigeon's egg, from the posterior wall of the larynx and found it attached by a broad base to the mucous membrane over the cricoid cartilage. The operation was done by a lateral pharyngotomy and recovery was uneventful. Dr. Jobson Horne made a section of the tumor and called it a mixed cell sarcoma.

<sup>1</sup> THE LARYNGOSCOPE, June, 1901.

<sup>2</sup> *Ibid*, July, 1901.

## **SOCIETY PROCEEDINGS.**

### **NEW YORK ACADEMY OF MEDICINE.**

#### **SECTION ON LARYNGOLOGY AND RHINOLOGY.**

*Stated Meeting, November 25, 1903,*

WALTER F. CHAPPELL, M.D., Chairman.

#### **Case of Cleft Palate.**

DR. TALBOTT R. CHAMBERS reported this case and presented the patient, a man of twenty-four, with no history of such deformity occurring in other members of the family. His hare-lip had been operated on in childhood in a rather bungling manner. Examination through the open mouth showed the ethmoidal region and the openings of the Eustachian tubes. The patient took chloroform and oxygen badly so that it became necessary to substitute ether. On forcing the mouth open with the gag the breathing would stop, only to be resumed on releasing the gag. The operation consisted in forcing a sharp-edged hoe of Brophy between the up-turned roof of the mouth and antrum on each side until it was free for its whole length, and then turning toward the median line and fracturing the bone. A strip of mucous membrane was removed from the free edges, and silk-worm gut sutures were inserted. The sutures in the soft palate gave way. During the first week, the patient complained bitterly of the length of the palate. A second attempt upon the soft palate also failed. Muscular action in deglutition, combined with infection from the extensive denudations in the nares largely accounted for this failure. The operation was done six weeks ago, and since then the man's whole view of life has changed. The case was reported because where the roof of the mouth had its halves developed simply in a vertical instead of a horizontal position, the operation was curative. It would be better to attempt the operation on the soft palate as a secondary operation. These cases evidently required special care in anæsthetizing. Prior to the operation, the man could not articulate, and it was difficult for him to make his wants known; at the present time, he could articulate quite well with the exception of the sibilants.



**Preliminary Report on a Case Illustrating Long Continuous Wearing of Intubation Tube for Chronic Stenosis of Larynx in Adult.**

DR. W. K. SIMPSON exhibited a female patient who was now wearing an adult intubation tube. She has been wearing it continuously for nine months. One year ago last October, she was operated on for impending suffocation at Roosevelt Hospital, tracheotomy being done, and last March was still wearing the tracheotomy tube. Examination at that time showed the larynx to be practically closed. Under chloroform, a hard rubber intubation tube was substituted for the tracheotomy tube. The tracheotomy wound healed well, excepting a small sinus, which necessitated closing by operation. In this operation she was given the chloroform through the intubation tube. The speaker said he would probably leave the tube in position for an indefinite period. She has worn the tube continuously for nine months, perfectly comfortably.

DR. J. W. GLEITSMANN referred to the case of a child, who had been intubated for diphtheria, and a metallic tube inserted. This tube has been allowed to remain for four or five months. As a result, ulceration occurred. When the child was first seen by him, the larynx was completely stenosed, and he had, therefore, proposed to do a laryngotomy and to excise the soft parts of the larynx. This operation was not a success. At first, he supposed that he could open the larynx from below, and succeed in producing a passage with a dilating instrument, but this procedure was followed by *schluckpneumonic*. Ultimately, the larynx became cicatrized again, and although intubation was resorted to, the tube was not left in sufficiently long. He proposed making a second laryngotomy, cutting away additional cicatricial tissue. These cases of cicatricial obstruction of the larynx after prolonged retention of an intubation tube, were apt to be very troublesome.

**Epithelioma of the Tongue. Treatment by Radium.**

DR. J. CLARENCE SHARP presented a man in whom a diagnosis had been made of epithelioma of the side of the tongue. When first seen by Dr. Sharp, on October 1, there was a growth, about one inch in diameter, which presented all the appearances of epithelioma. The patient had not noticed it until three weeks before. A piece of the growth was submitted to Dr. J. S. Thacher, who reported it to be a papilloma. Not being satisfied with this diagnosis, the speaker said he removed the whole growth with the snare, and sent it to Dr. Thacher, who reported it to be epithelioma. Dr. H. Grad had since been treating the wound directly by means of exposures to radium

having 30,000 radio-activity. The tube containing the radium was wrapped in rubber tissue and placed against the wound for five minutes. After this, the area was exposed to the X-ray for fifteen minutes. It is 15 days since the growth was removed. The wound has entirely healed and is now covered with what appears to be perfectly healthy mucous membrane. The use of radium is so recent that no one is able to say whether this epithelioma will or will not return. The patient will be kept under observation and the radium and X-ray continued for some time. I hope to be able to show him to you again.

**Demonstration of Models and Drawings of Killian's Radical Operation for Frontal Sinus Disease.**

DR. J. W. GLEITSMANN described this operation by means of plaster casts. He said that by preserving the supra-orbital arch this operator was able to prevent disfigurement, and close the wound immediately. He claimed to be able to discharge the majority of his patients in about two weeks.

DR. THOMAS J. HARRIS said that this demonstration had given him a better understanding of this operation, which, in many ways, seemed to him the most rational one for empyema of the frontal sinus. He had done the operation a number of times upon the cadaver, and once upon the living subject. In his hands, the operation had presented a number of difficulties. The removal of the floor of the sinus, especially through the opening into the anterior wall, was not an easy matter, and if one attempted to save the arch of bone and remove it from below one was apt to produce a ptosis. Moreover, in the displacement of the eyeball there was a possibility of doing harm, not only to the eye, but to the lachrymal gland. It had occurred to him that the operation might be modified along the lines laid down by Dr. Lothrop, of Boston. This gentleman did not attempt to remove so much of the frontal process of the superior maxilla, but from the inside broke down the partitions dividing the frontal sinus and the ethmoidal cells. Certainly, this was feasible upon the cadaver, and the method seemed to avoid the danger to the eyeball and the ocular muscles. Dr. Killian, in his earlier cases, had frequently had to contend with iritis.

DR. E. GRUENING said that he performed this operation last week, and found it very easy. It was not at all difficult to remove the floor of the sinus or the roof of the orbit. There was no danger of injuring the muscles or of causing paralysis. He had never seen iritis follow this operation, or the one of Jansen. The operation of Killian was certainly logical and simple. In doing the operation one must

have a special shield which would allow the assistant to protect the periosteum and the eyeball.

DR. C. G. COAKLEY also spoke of the great value of this demonstration of Killian's operation. He was inclined to think that the operation caused a little more deformity, i. e., a gradual sinking in of the forehead. Instead of taking away all of the anterior bony wall, as Killian did, and allow the skin to fall in with very little granulation tissue between, he thought if a smaller opening were made in the anterior wall, and the mucous membrane were entirely removed and the cavity packed so as to allow it to fill in with granulation tissue, there would be less sinking of the skin. When the ethmoid cells were diseased, the opening could be enlarged and the incision extended downward, but not nearly so far as in Killian's operation. In private practice it was very important to avoid making an unnecessarily large scar, as it was a distinct deterrent to others who were in need of the operation. Equally good results could be obtained by this method, although perhaps not quite so rapidly, and there would be less deformity.

DR. L. A. COFFIN said that the incision along the nose must be well below the orbital plate so that if it were necessary to go through the ethmoidal tract this could be done with the instrument parallel to the cribriform. This could be done much better if there were plenty of room, and, hence, the wound should not be made too small. In other respects, he agreed with the remarks of the last speaker.

DR. GLEITSMANN said that it was true that Killian had met with a few cases of iritis, but he had found no trouble from this source providing care were taken not to injure the trochlea. Killian claimed to obviate the disfigurement altogether, and, certainly, his published photographs seemed to support this contention. Personally, he was of the opinion that if one was not careful in removing the inferior wall, great difficulty would be experienced in removing all of the posterior part of the middle turbinal and the sphenoidal sinus at one sitting. It should not be forgotten that the operation was a thoroughly radical one.

#### **The Modern Treatment of Naso-Pharyngeal Fibroma.**

DR. B. BRYSON DELAVAN was the author of this paper. He said that a careful search through the literature since 1883 had been made the basis of this contribution. Histologically, naso-pharyngeal fibroma consisted of vascular connective tissue occurring in all gradations from the pure fibroma form to those of a looser structure, with more numerous cells and blood vessels, approaching in type fibrosarcoma. Such a tumor might arise from any part of the upper

posterior wall of the pharyngeal cavity. The favorite point of attachment was at the base of the skull. The tumors were apt to be pedunculated, the pedicle being firmly incorporated with the periosteum and bone. The pedicle was largely composed of fibrous tissue, and, on section, the vessels remained open and caused very troublesome hemorrhage. The adjacent parts were absorbed in every direction as a result of the pressure produced by the growth, with the result that the size of the pharynx was so greatly increased as to make instrumentation much easier than under ordinary conditions. Three general methods of treatment had been employed, viz: (1) The use of some preliminary operation; (2) the removal of the growth, without preliminary operation, through the natural passages by means of the cold wire snare, the curette or the forceps, and (3) the use of electrolysis, the galvano-caustic snare or the galvano-cautery. These growths were removed as far back as the eighteenth century, but the earlier operations were really evulsions. The preliminary operation was usually a very serious procedure, causing much shock and loss of blood. The mutilation resulting from the preliminary operation had remained a serious objection to it, even though in recent years the statistics had been improved. Removal by evulsion, curettage and the cold wire snare had been practiced for many years, and the method was now commonly known by the name of one of its staunch advocates, Doyen, of Paris. To Nelaton belonged the credit of having introduced the treatment by electrolysis. By the use of electrolytic needles, both electrolysis and mild cauterization could be produced. The most decided effect was produced when the needles were made of copper or of iron. Either the unipolar or the bipolar method could be employed. By the unipolar method progress was slow and rather painful. When a little delay was justifiable, the electrolytic method should be employed. The number of applications necessary would vary with the dimensions of the growth and its histological character. The cautery loop was decidedly better than the cold wire snare. The shock of the operation was almost nothing. The speaker said that the two canulae employed in this operation should be separable so as to facilitate that very difficult part of the operation, the insertion of the wire. The adjustment of the wire was sometimes aided by fastening silk to the wire and passing the silk around the pedicle of the tumor. The Voltolini method was to reduce the size and vascularity of the growth by electrolysis, and follow this by evulsion or the use of the galvano-caustic snare. Evulsion was often followed by severe hemorrhage. A study of the clinical records of the past twenty years showed that of 27 preliminary operations, 16 resulted in cure, 7 in death, 4 in

recurrence and in 4 cases there was serious bleeding. Of 20 operations by evulsion, 19 resulted in cure, and 1 in death. Out of 21 cases operated on with the cold snare, 20 were cured and 1 died.

Out of about 70 cases treated electrically, there was not one fatal case. Among the probable reasons for the lack of a general adoption of this obviously superior method of treatment were adherence to tradition, the need for great special skill, the lack of familiarity with electro-therapeutics and the slow and sometimes painful nature of the electrolytic method. The younger the patient, the longer the period during which it would probably increase in size; the older the patient the greater his powers of resistance and the larger the cavities. Prompt interference was indicated in young subjects if there were evidence of rapid growth and considerable vascularity. In conclusion, he would say that the treatment of this class of cases had passed from the hands of the general surgeon.

DR. ROBERT ABBE said that this paper should settle for good, the attitude of surgery towards the class of cases considered by the author. That they would be taken out of the hands of the surgeon permanently he did not believe, but that they in recent years had been absorbed by the specialist was certainly true. He recalled having been several such cases at St. Luke's Hospital thirty years ago treated by the identical electrical methods and instruments which the speaker had just advocated. In looking over the statistics presented in the paper this evening he was impressed with the fact that some of the operations had been done many years ago, at a time when more of these tumors were allowed to grow to a very large size, making the operation for their removal more serious. Formerly these growths had been considered malignant, but in recent years, as shown by Cheever of Boston, the opinion has prevailed that they usually disappear spontaneously as adult life was reached, or, after one or two removals they cease to recur. Surgeons generally favor removal of these growths by the snare, or by electro-cautery or igni-puncture. For himself, the paper settled the question that severe bloody operations are not ordinarily called for.

DR. COFFIN said that at one time Dr. Harris had exhibited to the section a patient whose naso-pharynx was completely filled with a fibroma. Both Dr. Harris and himself had failed in removing the growth by the snare, and the speaker had then suggested treating the case by injections of mono-chloroacetic acid, by means of his needle, thus producing a non-suppurative slough. This treatment had been begun about one year ago, and had been necessarily largely tentative as he did not know what quantity of the acid could be

safely used. It was found that several drops could be injected without causing reaction, and that the pain was only momentary. The patient now has normal nasal respiration and is practically cured.

DR. GLEITSMANN said that in 1863 he had seen quite a number of these cases operated upon in Berlin. The speaker presented a specimen removed by him from a boy of about sixteen years, whose nasopharynx had been completely blocked with the growth. At first, he had removed some of the growth by the cautery snare, and had encountered considerable hemorrhage in the nose. Then electrolysis had been employed with very satisfactory result. Without reducing the growth by electrolysis he would not have been able to remove the growth.

DR. TALBOT R. CHAMBERS referred to a case in which he had encountered severe hemorrhage while removing such a growth on three different occasions. Finally, the case was given X-ray treatment on alternate days for three weeks, after which the growth took on a decided retrograde change. The X-ray was applied through the anterior nares by means of a speculum.

DR. T. J. HARRIS said that the author had treated this subject in such a masterly manner that he deserved the thanks of the Section. He was surprised to learn from the remarks made this evening in discussion that the condition of naso-pharyngeal fibroma was so common. He had been especially impressed from the bone cases he has had with the formidable character of these growths because of the liability to severe hemorrhage, and repeated recurrences. In another case than the one referred to by Dr. Coffin he had himself made use of mono-chloracetic acid, and the result had been good. He had also been treating a case by electrolysis, and had found this method the only one of value. X-ray treatment and the Doyen method had both been tried previously in this case, and had been followed by removal of the growth. In the cases that he had seen there had been firm attachment to the vault without any pedicle whatever.

DR. DELAVAN said that these tumors were certainly very rare. The methods considered in the paper were not new, but were relatively so, as shown by a recent discussion in which there was evidenced a comparative unfamiliarity with the Voltolini method. It was certainly true that wholly satisfactory statistics were entirely wanting, the available material being very hard. Many of the fatal cases in which a preliminary operation had been done, were simple and did not justify such methods.

## THE LARYNGOLOGICAL SOCIETY OF LONDON.

*Eighty-Fifth Ordinary Meeting, November 6th, 1903.*

P. McBRIDE, M.D., F.R.C.P.Ed., President, in the Chair.

The President called upon Sir Felix Semon to open the discussion on

### **The After-treatment of Intra-nasal Operations (Excluding Naso-pharyngeal).**

SIR FELIX SEMON read the following letter from Mr. Butlin, who was unable to be present :

MY DEAR SIR FELIX SEMON :—I am very sorry indeed that my attendance at a committee of the two Colleges will prevent me from being present at the Laryngological Society and taking part in the discussion on "After-Treatment of Nasal Operations." I did not know it was to come on so early in the session, but I suppose that the members are in such a hurry to tell their personal experience that they cannot wait until the new year.

Had I been present, I meant to speak, rather of un-success than of success. For, while I have had no difficulty at all in many cases, there have been other cases in which no kind of after-treatment has seemed to be attended with success. The more one does for some patients, the worse they seem to be. The difficulty of preventing adhesions, of maintaining the large passage one has made at the time of the operation, of raising the valleys and keeping them up, of lowering the hills and keeping them down, etc., is enough to choke off the youngest and most stout-hearted of nasal surgeons. There have been patients with nasal troubles on whom I have operated, whom I have afterwards heartily wished I had never seen.

Of course, I hear of nasal surgeons who never meet with such cases as these. I can only congratulate them. But I can truthfully say that I have been consulted by patients of many of the best nasal surgeons in this town on account of the failure or very partial success of operations which they have undergone; and I have no doubt, on the other hand, that some of my failures have, in like manner, consulted some of my colleagues among the members of the Laryngological Society. Each one of these patients always seems to think that, had the operation been performed by some other surgeon than the man who did operate, he would have been a sound and happy man!

Believe me, yours very truly,

HENRY T. BUTLIN.



SIR FELIX SEMON said:

Mr. President and Gentlemen:—The practitioner who looks for help and guidance to modern rhinological literature, concerning the question of after-treatment of intra-nasal operations, will reap but a poor harvest. Some even of the best and most modern rhinological text-books pass over the subject almost in silence, others dismiss it with a few words or, at most, sentences. That difficulties may be encountered in connection with this subject is hardly referred to in any of them, and it is quite the exception to meet with utterances such as Moritz Schmidt's:\* "The duration of the healing (viz. after operations for the removal of spurs, etc., from the septum) demands about four weeks in uncomplicated cases; should perforation of the septum have been unavoidable more time is required;" and as Chiari's:† "The after-treatment of these cases (i. e., when the lower turbinated bone or its anterior part has been removed instead of operating upon the deviated septum) is much simpler and shorter than in complicated operations for deviations, spurs of the septum, etc. For after such, one often has to plug, dilate, and perform small subsidiary operations for weeks, whilst after resection or extirpation of the lower turbinated body a four days' tamponnade by means of iodoform gauze suffices. Besides, after operations for deviation, perforation often threatens."

From this "conspiracy of silence," if I may so call it, it would seem but natural to draw the conclusion that the after-treatment of intra-nasal operations was a simple and trivial matter, not deserving any special discussion, and that experiences such as Schmidt's and Chiari's were quite exceptional. In reality, however, I venture to think that this impression does not correspond to the facts of the case. Personally I must confess that, if not very often, yet more frequently than I like, I have met with difficulties in the after-treatment of intra-nasal operations. Seeing the general silence on the topic in the admittedly best text-book, I naturally at first considered these difficulties to be due either to particular bad luck, or to particular clumsiness of my own, and I equally naturally felt somewhat shy at confiding my troubles to anybody. But when I had summoned sufficient courage to do so in private conversation with a few fellow-specialists of admittedly great manual dexterity, I found to my surprise—and might I say to my relief?—that the difficulties mentioned by Chiari, and experienced by myself, were by no means so exceptional as I had concluded them to be, and that they had been

\* Die Krankheiten der oberen Luftwege, 3te Auflage, 1903, p. 597.

† Die Krankheiten der Nase, 1902, p. 168.

encountered—occasionally at least—by almost every man of experience to whom I spoke on the subject. This also clearly appeared from the discussion which incidentally took place in this society on March 3, 1899. Last year, again, Dr. Hill, in the discussion of Dr. Lambert Lack's case of symmetrical thickening of the upper and anterior part of the nasal septum,\* had the courage to state in this Society that he had had in cases of operations on the septum difficulties and disappointments, and that he had almost come to the conclusion that there was a tendency in all soft thickenings of the septum to recur after removal, and sometimes even of hard structures also. In the same discussion Dr. Pegler described a case in which he had repeatedly to operate upon a swelling of the septum, and in which the patient ultimately ceased to attend.

Under these circumstances I felt justified in renewing, when the question came before your Council, which subject should this year be chosen for a general discussion, the proposal which I had repeatedly made previously when the topic incidentally crept up in the course of discussion on individual cases shown to the Society, viz., that one of our meetings should be devoted to the discussion of the after-treatment of intra-nasal operations. The Council adopted that suggestion, and my belief that the subject is a suitable one for the purpose has since then been further strengthened by the fact at the recent meeting of German otologists at Wiesbaden on the 29th and 30th of May of the present year, Dr. G. Krebs, of Hildesheim, read a paper on "The Preparation and After-treatment of Intra-nasal Operations," which led to a very animated discussion in which ten different speakers took part, and which revealed a great diversity of opinion amongst men of considerable experience on this particular question. I wish to express here my sincere thanks to Dr. Krebs for very kindly sending me a copy of his paper, which has since been published in the *Verhandlungen der Deutschen Otologischen Gesellschaft*, and for a précis of the discussion which followed the reading of his paper.

To make our discussion practically useful I propose, with the permission of the Society, to limit my observations to the after-treatment of more strictly speaking intra-nasal operations, particularly to those undertaken for the relief of nasal stenosis, and to entirely exclude the after-treatment of operations performed on account of disease in the accessory sinuses and in the naso-pharyngeal cavity. The great majority of operations undertaken in affections of the accessory cavities are performed on account of chronic suppuration in those

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\* Proceedings of the Laryngological Society of London, May 2, 1902.

cavities, and this one fact so materially alters the character of the after-treatment, that to discuss these operations jointly with truly intra-nasal operations undertaken for the relief of stenosis would in all probability lead to a desultory discussion, and defeat the practical objects which I have at heart. Similar objections obtain with regard to the operations, including the after-treatment of naso-pharyngeal affections, and I therefore hope that I have the permission of the Society to limit my own observations to, and invite discussion on, the after-treatment of strictly intra-nasal operations only. It may perhaps appear to some members that the subject thus defined was a very narrow one, but practical experience has taught me that as a rule more useful discussions result from the thorough thrashing out of one definite subject, than from the inclusion of heterogeneous topics in one and the same discussion, and I hope that the present occasion will make no exception to this rule.

On the other hand, it will be indispensable to include in our discussion the questions of preparation for these operations, of the selection of the method of operation, and of the employment of cocaine and adrenalin during the performance of the operations themselves, as these topics are inseparably connected with the question of after-treatment which forms the subject proper of our discussion to-day.

This applies particularly to the question of the selection of the method of operation, and I propose therefore to discuss in my introductory remarks the main principles of the after-treatment in connection with the question of the selection of the method of operation.

With regard to the preparations for intra-nasal operations I need not dilate, speaking before a society of experts, upon the impossibility of proceeding so strictly aseptically as in most other regions of the body. Even if after completion of an intra-nasal operation the nostril operated upon could be plugged so hermetically as to effectually prevent the entry of infective material both from the front and posteriorly, yet the danger of infection by the secretion of the accessory sinuses could not be effectually excluded. Additionally it must be confessed that the conditions under which many of these operations are performed, viz., during consulting hours at the operator's private residence, or in the out-patient room of a hospital, are not particularly favorable to the performance of really aseptic operations. Fortunately, however, practical experience, as well as the bacteriological investigations of StClair Thomson and Hewlett, and of Wurtz and Lermoyez have shown that the mucous membrane of the nose is not by any means a good soil for the development of pathogenic

bacteria, and—from the point of view of clinical experience—it is a curious fact that if any septic complications should arise after intra-nasal operations they usually do not occur in the nose itself, but much more frequently in the pharynx in the shape of tonsillitis, or of a more general inflammation of the mucous membrane of the pharynx or naso-pharynx, or in the form of an acute otitis media. In spite of this comparative immunity of the nasal mucous membrane, however, it will of course be the duty of every operator to carefully sterilize all instruments and other objects, such as gauze, cotton wool, brushes, celluloid plates, etc., which, during and after the performance of intra-nasal operations, may come into contact with the parts operated upon. That the operator's hands should be properly disinfected before the performance of any such operation goes without saying. In exceptional cases it may be necessary to disinfect the patient's external nose and its surroundings in the usual way by means of soap, ether, and sublimate. In cases in which there is much secretion or formation of crusts in the nose these will have to be removed previous to the operation itself by means of a tepid 4 per cent boracic acid or a physiological salt solution. I refrain from entering upon further details concerning the preparations for the operation, as the subject is only incidental to my task proper. A number of noteworthy particulars concerning this question will be found in Dr. Krieb's paper previously alluded to.

Concerning the operation itself, I take it that in the great majority of cases local anæsthesia will be preferred to general. It is so very essential that the operator should at every moment see exactly what he is doing, that the one advantage of the patient's sitting upright, and the operator's being able to concentrate a powerful light upon the parts to be operated upon, which he thus sees in the position to which he is accustomed, in my opinion quite outweighs all claims which may be made in favor of a general anæsthetic. Moreover, the majority of these operations can be performed so rapidly, and is so little painful after repeated applications of cocaine, that there is no need for a general anæsthetic with its attendant disadvantages, of the employment of an assistant, of interference with the field of operation by the anæsthetist's apparatus, etc. Of the various methods of applying cocaine, viz., by a spray, by the introduction of plugs of cotton wool saturated in a cocaine solution, and by painting the region to be operated upon by means of a camel's-hair brush, I prefer the last named as the surest, and the one least likely to produce symptoms of cocaine poisoning. I always in these cases use a 20 per cent solution.

With regard to the employment of adrenalin, I have on previous occasions raised the question\* whether after its use secondary hemorrhages were not observed more frequently and more abundantly than without its use. Personally I have only had one really serious hemorrhage after intra-nasal operations, and I am far from accusing the application of adrenalin which I used in this case as its cause. But in spite of Bukofzer's very valuable paper on that subject,† and of his reply to my question,‡ I confess I am still under the impression that since I have used adrenalin in these cases I hear more frequently statements made by my patients as to the occurrence and persistence of bleeding a few hours after the operation than in previous times. From the somewhat timid but increasing support occasionally given to these statements of mine (see, for instance, Dr. Delie's letter in the *'Internationales Centralblatt für Laryngologie,'* vol. xviii, p. 400), I conclude that my experience has not been exceptional, and I should be glad to hear in the discussion which is to follow these introductory remarks what the members' of this Society observations are on that point. In one respect I think there will be general agreement with the advice given by Dr. Krebs, the wisdom of which I had appreciated from my own personal experience before reading his communication, viz., that in operations undertaken for reducing the redundant mucous membrane covering the lower turbinated bones, the previous application of adrenalin to these structures deprives us, in consequence of the extreme contraction of the erectile tissue, of a correct judgment of how much ought to be removed, and that in these cases the application of adrenalin is inadvisable. In operations on the septum, etc., I use adrenalin chloride 1 : 1000, and apply this also by means of a camel's-hair brush.

With regard to the various methods of operation, the following ones are at our disposal:

1. Operations by means of chemical caustics (nitrate of silver, chromic acid, trichlor-acetic acid, phenol sulpho-ricinicum, etc.)
2. Electrolysis.
3. The galvano-cautery.
4. Cutting instruments (knives, scissors, chisels, saws, trephines, snares, etc.).

Which of these methods is to be employed will, of course, depend upon the nature of the case, and upon the proclivities of the individual operator. Here I have only to deal with the reaction which

\* *Internationales Centralblatt f. Laryngologie*, vol. xviii, p. 306.

† *Archiv f. Laryngologie und Rhinologie*, vol. xiii, p. 2.

‡ *Internationales Centralblatt f. Laryngologie*, vol. xviii, p. 354.

follows the employment of the individual method used, and the necessities which in consequence may arise with regard to after-treatment.

Excluding electrolysis, which, in spite of the warm recommendation of a few authors, does not appear to have gained a firm footing amongst the usual methods of intra-nasal operations, and of which I have no personal experience, it may be stated, I think, without fear of contradiction, that, generally speaking, of all the methods named, the galvano-cautery is the one which more frequently gives rise to considerable reaction than any other one. Time was, and that not long since, when the galvano-cautery was looked upon as an almost universal panacea in all operations on the nose in which reduction of tissue was aimed at, and when it was used extensively and energetically by almost every one who had to deal with these affections. I think I am correct in summarizing the present situation by saying that its popularity, although by no means exhausted, has been considerably on the wane in the course of the last ten years. This is, I believe, not merely due to the fact that the results hoped for in all possible affections of the nose were by no means always obtained, but also in a not inconsiderable degree to the troubles but too often arising from the post operative reaction after its employment. Not that these troubles arise in all cases. I am particularly anxious not to damage my case by overstating it in any particular, but whilst the reaction after the employment of the galvano-cautery usually keeps within easily controllable bounds, it cannot be denied, I think, that in a large number of cases an eschar forms which at first is firmly adherent, and only several days after the operation becomes sufficiently loosen to be removed without producing fresh reaction. Here one of the troubles occurs, which are, I think, hardly dealt with explicitly enough in most of the text-books, seeing its frequency. Even though great care should have been taken to avoid injury to the opposite mucous surfaces, not rarely a rather general inflammatory reaction follows the application of the galvano-cautery, and if one sees the patient on the day after the operation one finds that the nostril operated upon is swollen in its entirety, and that the opposite surfaces nearly, or, indeed, completely touch one another. Before the operator's mind the spectre of the formation of adhesions rises, and I think we all know how troublesome it is to deal with these. What is he to do under these circumstances? Probably he knows from unpleasant previous experience that meddlesomeness in these cases but too often revenges itself by ever-repeated and even increasing inflammatory reaction, necessitating very prolonged and tedious after-treatment; leaving matters alone may, on the other hand,



actually result in the formation of adhesions between the two opposite surfaces. It is, of course, easy enough to prevent from the very first the touching one another of the two opposite surfaces by interposing a foreign substance, such as a strip of iodoform gauze or some aseptic cotton wool, or a celluloid plate between them, but this again has considerable practical disadvantages. In the first place any foreign substance introduced into the nose after an operation usually produces a great amount of irritation not only in the nose itself, but also in the adjoining territories, and may even lead to septic complications. There will be few specialists, probably, who have not occasionally seen some tonsillitis or general pharyngeal catarrh, or a mild form of general septicæmia manifested by high temperatures and swelling and tenderness of the cervical lymphatics after plugging, whilst rarer complications, such as otitis media or empyema of one or other of the accessory cavities are by no means unheard of, leaving rarer troubles alone, such as meningitis, dacryocystitis, etc., of which isolated examples may be found in rhinological literature.

Secondly, if the nose be plugged very firmly, and for some length of time, the plug is apt to cause local anæmia of the injured parts and thereby to prevent healing. This is a point to which Mr. Waggett in one of our previous discussions, when I raised the question we are now discussing, very properly drew attention\*

Thirdly, if but a thin strip of gauze or a celluloid plate be introduced in order not to interfere too much with the circulation in the parts operated upon, they were not rarely sneezed out by the patient; or the opposite might occur, and they might penetrate into the nasopharynx.

It is not easy to advise, seeing that one is thus sometimes "between the devil and the deep sea," which course ought to be followed, and this is one of the points on which I hope we shall hear in the subsequent discussion the views of experienced members of the Society. Personally, whilst loathing the tedium of the after-treatment in such cases, I am most inclined to merely watch the course of events, and to interfere only when the formation of adhesions, unless prevented, seems unavoidable. But it is undoubtedly a great reproach to the galvano-caustic method, which, indeed, has induced me to more and more narrow its employment of recent years, that this watching sometimes necessitates frequently repeated visits on the part of the patient. In not a few cases, even if all goes well, and the eschar comes spontaneously away, or is removed with difficulty a few

\* Proceedings of the Laryngological Society of London, March 3, 1899, p. 59.



days after the operation, fresh sloughs form repeatedly, and have to be watched and removed as necessity may arise, so that the duration of the after-treatment thereby becomes even more prolonged. It has been suggested that most of the drawbacks named may be obviated by cauterizing not the free surface of the mucous membrane, but by plunging a pointed galvano-cautery below the surface, and producing adhesions between the mucous covering and the periosteum, thus diminishing the erectility of the soft structures, binding them tightly to the underlying bone, and thereby diminishing the obstruction of the passage of air. I have repeatedly tried that method, but may summarize my experiences by saying that whilst even this method does not infallibly protect against violent inflammatory reaction following, its ultimate results were usually too insignificant to warrant me in recommending it.

Naturally, under these circumstances the employment of other methods of operation suggests itself, such as that of chemical caustics, either after the use of the galvano-cautery, or primarily. At one time after Heryng's recommendation I used crystals of chromic acid, but did not find them sufficiently effective to deal with considerable hypertrophies of the mucous membrane. It may be that this experience has deterred me from employing trichloroacetic acid in solid form, as recommended from various quarters. I should like to hear the experiences of members of the Society on its use. I have also formerly frequently availed myself of *solutions* of caustics in various concentrations, but cannot say that, whether they were used alone or after galvano-caustic applications, I have found that they modified in a favorable manner the inflammatory reaction, which to me is the bugbear of operations for nasal stenosis.

Theoretically, one should expect that the employment of cutting instruments would be more calculated than any other method to minimize such inflammatory reaction, and, indeed, in a goodly number of cases in which they are used all is plain sailing. This applies particularly to the snare. How insignificant in most cases is the reaction after removal of nasal polypi by means of the snare! In other cases, again, slight inflammatory oedema may follow the use of the knife, the saw, the electric trephine, chisel, etc., such as would be but natural to expect, but this oedema in a few days subsides spontaneously. In a third category, however, which, according to my personal experience, unfortunately forms a not inconsiderable fraction of the total number of cases coming under observation, the reaction very unexpectedly is much more violent, and the difficulties arise which have induced me on several previous occasions, and

again now, to bring the question of the after-treatment after intra-nasal operation before our Society.

Let me describe by means of an imaginary concrete case what I mean.

A patient consults me on account of considerable nasal stenosis, leading to mouth-breathing, unpleasant sensations in the throat, and frequent catarrh of the respiratory passages. His nose is extremely narrow externally, and internally on both sides. The stenosis is found to be due, say, in the left nostril to a very large spur from the septum, extending not merely through the cartilaginous, but also through a good deal of the bony part. This spur practically occludes the whole nostril, the turbinated bones on that side being not at all enlarged, so that removal, say of the front part of the lower turbinated bone on that side would obviously not materially improve the condition. (I mention this particularly in view of the advice given by various authors in cases of crests and spurs on the septum obstructing nasal passages to leave the septum alone, and to remove the corresponding part of the turbinated bone or bones. No doubt this is feasible in a good many cases, but by no means in all, as in the one just sketched.) On the right side the stenosis, in our imaginary patient's case, is due to a certain but not considerable degree of general deviation of the septum into the nostril *plus* some enlargement of the middle and lower turbinated bones, with considerable swelling of the mucous membrane covering these structures. It is obvious that on the right side reduction of the turbinated bones, particularly of the lower one, will be required, whilst on the left removal of the spur is clearly indicated. Reduction of the enlarged turbinates on the right side is performed by means of curved scissors and the snare, according to Mr. Lake's method, and relief is obtained on the right side. The stenosis on the left side is dealt with by means of the electric saw or the electric trephine, which I prefer, after trying a good many methods, to any other. After previous but merely of checking any tendency to secondary hemorrhage. The patient is seen next day, when he reports that no untoward symptom has developed. The iodoform gauze is removed, there is ample passage for air, the surface looks clean and smooth, and there are no cocaineisation and adrenalin application, the spur is removed either at once in its entirety, or possibly by two introductions of the electric trephine, care being taken not to injure the mucous membrane of the opposite turbinate. The spur is thus taken away in its entirety, and even discounting the transitory effect of the cocaine and adrenalin application, obviously a large and sufficient airway has been pro-

duced. The patient expresses himself delighted; a few strips of iodoform or cyanide gauze soaked in peroxide of hydrogen are loosely introduced into the operated nostril, not with a view of plugging, symptoms of inflammatory reaction. Formerly, under such circumstances, I used to insufflate some disinfecting powders into the nose, such as iodoform, aristol, europen, etc. I have, however, just as little as Krebs—whose statements on that point I shall quote further on—been able to convince myself that this proceeding accelerated the healing of the wound, and have given it up. When you see your patient on the following day a large whitish slough may be found to cover the whole of the operated surfaces. This, however, in my experience does not occur frequently, and if it does, the slough can, as a rule, be easily removed at once, not being adherent as in the case of galvano-caustic eschars. Much more frequently, however, the following happens; the nostril, when examined on the second day after operation, is decidedly narrower than it was on the previous day, owing to a general swelling of the field of operation. Naturally one attributes this to some transitory inflammatory œdema, and, remembering the fundamental principle of surgery, viz., if possible not to interfere with the normal healing of wounds, one leaves the matter alone, thinking that this apparently inflammatory swelling will, within a few days, subside of its own accord. Soon, however, one finds that unfortunately one has been mistaken in one's hope. Far from subsiding, the swelling even increases, and has evidently come to stay. Now troubles may arise, such as I described before in connection with galvano-cautery operations; renewed stenosis danger of adhesions, difficulty in keeping the opposite surfaces asunder, and protracted after-treatment. In other cases no violent reaction and no troublesome symptoms ever occur, except possibly for some length of time the formation of crusts on the operated surfaces, which can be easily washed away with a physiological salt solution. The net result, however, is that when the healing of the wound has been completed, the permanent enlargement of the passages is much less considerable than it was at the moment of the completion of the operation, and although the patient himself may be, and usually is, quite satisfied, a still small voice within tells the operator that the result is not quite as brilliant as he had flattered himself it would be when he inspected the nostril after the removal of the spur. Nor is it uncommon in my experience that patients who have been operated upon by skilled specialists for nasal stenosis consult one in order to ask whether or not something more could be done for them.

Now, what does happen in these cases? Why did it happen? Can it be prevented? These are the three questions which, above all others, will I hope form the main topic of to-day's discussion.

If we want to give an absolutely unprejudiced reply to the first question—what does happen in these cases?—it would be, I think, to the effect that an equally undesired and undesirable *excess of repair* is taking place. I purposely avoid the expression "regeneration" because that would imply that all the previous constituents of the removed excrescence—mucous membrane, vessels, nerves, glands, cartilage and perichondrium, bone and periosteum—had been reproduced. In the absence of conclusive histological evidence proving the occurrence of such a regeneration, I refrain from using that expression, although occasional utterances met with in rhinological literature distinctly point to the conclusion that the idea of a true regeneration is entertained by various authors. Personally I am rather inclined to believe that the post-operative permanent swelling, of which I have spoken, is due to new formation of dense connective tissue. The rapidity of the process and the absence of callus-formation which could be demonstrated by the touch of the probe seem to me in favor of the latter view. I put this forward, however, only as an hypothesis; the actual nature of the ultimate tumefaction will have to be ascertained by future microscopic investigation.

In reply to the second question, viz., why did this tumefaction arise?—the most natural reply would seem to be that in all probability it had nothing to do with the method of the operation, unless indeed it be surmised that the tissues constituting the septum and the floor of the nose were endowed with a special proclivity towards repair after removal. Against both these views, however, the powerful argument at once arises, why, if either the method of the operation, or the physiological properties of the parts were at fault, the excess of repair did not take place in *all* cases? And this objection seems to me a real stumbling-block, for surely if either the method of the operation, or the peculiar conditions of the tissues were to blame, it is not easy to see why the difficulties described should not arise in all cases in which these parts had been subjected to operative interference. Yet it must be emphatically repeated that they are met with in a certain proportion of the cases only which have been operated upon by trephine, saw, chisel, etc., whilst in another fraction all is plain sailing. There remains the lame explanation of a "personal predisposition," an explanation more or less of the nature of "the refuge of the destitute," and mentioned by Dr. Krebs in that sense in a correspondence which I have had with him on the subject. It

holds the less good in the present case, because having given a good deal of attention to this question, I am confident that nobody would be able to say what that personal predisposition consists in. Neither age, nor sex, nor general state of health give the least clue beforehand to the operator what the reaction after the operation will be like. I have had men in rather advanced age, gouty, plethoric, indulging in the luxuries of the table, and in alcohol, healing promptly, and without the least trouble; whilst I have met with the difficulties described more than once in the case of healthy young persons. Quite recently in a case of traumatic nasal stenosis in an otherwise perfectly healthy boy I had to contend with the difficulties described, and had to keep him under observation for nearly five weeks after the operation.

Dr. Krebs tells me that in some of his own cases he thought he had discovered more tangible causes of the difficulties described in the following conditions:

1. Cases in which he believed that not everything diseased had been thoroughly removed; e. g., if in cases of hypertrophy of the lower turbinate the pathological enlargement of the posterior end, or on the lower lateral side, had been left untreated.
2. Cases in which the primary cause had not been first removed; e. g., when before removal of the lower turbinate a co-existing primary hypertrophy of the middle turbinate, or adenoid vegetations, or empyemata of the accessory cavities had not been dealt with.
3. Cases in which the after-treatment had been too meddling.

I cannot say that I should in any of my own cases accuse such conditions, as those described by Dr. Krebs, to have been the causes of my difficulties. I certainly have met with them much more frequently when operating upon the septum than when removing parts of the turbinates, and the only doubt which I have sometimes had in my own mind was whether possibly the removal of the *mucous membrane* covering the bony or cartilaginous excrescences, for the reduction of which the operation had been undertaken, had anything to do with the subsequent excessive reaction and excessive repair. Theoretically, one would, of course expect the very opposite, viz., greater cicatricial contraction owing to the greater loss of substance produced; and additionally there is the testimony of so experienced an observer as Moritz Schmidt, who states\* in the latest edition of his text-book that he no longer troubles in the least about the mucous membrane, and that he had seen no disadvantages accruing thereby. Still, I think it right to mention

\* L. c., p. 591.

this point, which brings me to the third question to be considered in this connection, viz., whether and, if so, how the tendency to excessive repair could be prevented? Seeing that—in my experience at least, and apparently also in Chiari's—the difficulty is most frequently met with when operating upon the septum, the natural way out of it obviously is to altogether avoid, if possible, operating upon the septum in cases of nasal stenosis due to both crests or spurs of the septum and enlargement of the turbinates, and produce a better airway by partial resection of the lower, and, if need be, also of the middle turbinated bone. I certainly think that, if this be feasible, it is the most natural way out of the difficulty, although it must not be left out of consideration that sometimes when the lower turbinated bone has been reduced in size, a few months later, enlargement of the middle turbinated bone on the same side is met with, and although in other instances excessive repair takes place in the region of the lower turbinate itself. I may remind the Society of a case in point brought forward years ago by Dr. Hill under the title of "Regeneration of Tissue along Inferior Crest after Turbinotomy."<sup>†</sup>

In not a few instances, however, as in the imaginary illustration given before, the simple expedient of substituting re-section of the turbinates for operations on the septum itself is out of the question, and the septum itself has to be dealt with. Assuming for a moment that after all there was something in the simple removal of septal enlargements with their covering mucous membrane by means of saw, trephine, or chisel, which caused violent reaction and excessive repair, the question arises whether anything could be done to combat them, or whether other forms of operation could be advantageously substituted. With regard to the first-named question, the rather surprising proposal has been recently made by Dr. Kreilsheimer, of Stuttgart,\* to apply after operations performed with the saw or trephine the galvano-cautery at red heat to the wound, and to insufflate for a time xeroform upon it. It is true that the author recommends this procedure not so much with a view of preventing reaction as secondary hemorrhages. But when I read his proposal I confess it looked to me rather like "driving out Satan by Beelzebub," seeing that to the reaction caused by the cutting operation, the irritative effect of the galvano-cautery was to be superadded. However, I did not mean to be deterred by theoretical considerations from giving the method a trial, and recently adopted it in a suitable case. The effect, however, was exactly what I had anticipated; reaction

<sup>†</sup> Proceedings of Laryngol. Society of London, Nov., 1895, and Jan., 1896.

\* Fraenkel's Archiv f. Laryngologie, vol. xi, p. 339.



was very considerable, the wounded surface was found covered the day after the operation with a large slough, which completely occluded the nose, and after removal several times re-formed, and the duration of the after-treatment was not in the least curtailed. I may have been particularly unlucky, but the experience was hardly encouraging enough to repeat the experiment.

On the other hand, I think that a method recommended by Moritz Schmidt, and slightly modified by myself, although not actually preventing inflammatory reaction, and certainly not the excessive repair, will be found of material assistance in diminishing, at any rate, the former. This is the use after operation of a weak boracic acid and cocaine spray. Schmidt recommends this spray in the concentration of three grains of cocaine and half a drachm of boracic acid to six ounces of water. Instead of employing simple water as an excipient, I use a solution of adrenalin chloride 1 to 10,000, in which the cocaine and boracic acid are dissolved. The use of this solution three times daily for several days after cutting operations in the nose not inconsiderably diminishes, in my experience, the inflammatory reaction, and thereby helps in curtailing the duration of the after-treatment.

Still the question remains, whether not special forms of operation could be advantageously submitted for the simple removal of deformities of the nasal septum.

It is, of course, well known that the late Dr. Asch, of New York, has proposed an ingenious method of treating deviation of the septum. It consists "in making a crucial incision through the cartilaginous septum over the most prominent part of the deviation, breaking down by finger or forceps the basis of the segments thus formed, and in the insertion of a hollow splint." The method has met with much favor in America, but has for some reason or other, so far as I know, not gained a footing amongst intra-nasal operations in this country or on the continent of Europe. I have no personal experience of it, and I hope we shall hear something about it in our discussion from those who have gained some experience of their own. I may, however, remind the Society that it is much more calculated to deal with deviations than with crests or spurs, extending not only through the cartilage, but also through the bony part of the septum, the latter being the cases in which I have most frequently met with difficulties.

Dr. Krebs, when corresponding with me on the subject, spoke most highly of the operation originally introduced by Krieg,\* and subsequently modified by Bönninghaus, consisting in total removal of the

\* Med. Correspondenzblatt des Württembergischen ärztlichen Landesvereins, 1886, Nos. 26 and 27; and Berliner klinische Wochenschrift, 1889, Nos. 31 and 32.



deviated parts of the cartilaginous and bony segments of the septum. Bönninghaus's modification consists in making on the convex side of the septum three incisions through the mucous membrane, the one parallel to the dorsum of the nose, the second along the mobile part of the septum, and the third corresponding to the floor of the nose. This is followed by resection of the mucous membrane of the convex side and of the cartilages and bones as far as they take part in the deviation, so that after the operation the septum consists only of the mucous membrane of the originally concave side.

I confess that when I read the detailed description of the method in Bönninghaus's original communication in Fraenkel's Archiv,\* I thought that it was a big undertaking. As a matter of fact the author himself recommends it in very severe cases of septal deviation only. This will be easily understood when one learns that the operation, according to his own experience requires from half an hour to two hours, and that in these cases he considers local anaesthesia infinitely preferable to general. Still, seeing the tedium of the after-treatment in so many cases in which these obstructions are dealt with by simple removal by means of cutting instruments, it appeared to me well worth consideration whether one should not resort to it, more particularly in view of the fact that its results are highly extolled by Krieg, Bönninghaus and Krebs. However, whilst preparing these introductory remarks, I have within the last few days come across some observations by Hajek and Menzel in the very latest number of 'Fraenkel's Archiv,'† which appear to me so noteworthy, and bear so much upon the question which we are discussing to-day, that I hope I shall be permitted to quote in full the first sentences of Hajek's paper in verbatim translation. They are as follows:

"Since the publication of the paper of Bönninghaus, in 1899, I have carried out Krieg's 'window-resection' in more than 100 cases. In 35 cases I was in a position to control the results of the operation for one to two years afterwards. I may be permitted to say at once, before entering upon questions of detail, that the results have been uniformly good, and that in my opinion similar good results, particularly in the case of severe deviation, are not obtained by any of the usual methods. I ought, it is true, to add at once that the method is complicated, technically difficult, and of long duration (half an hour to one and a half hours), and that it requires much patience

\* "Ueber die Beseitigung schwerer Verbiegungen," etc., Frankel's Archiv, vol. ix, Heft 2, 1899, p. 269.

† "Bemerkungen zu der Krieg'schen Fensterresektion," Frankel's Archiv, vol. xv, Heft 1, pp. 45 and 48.

on the part of the *patient* and of the operator. For this reason the value of the method must not be gauged by the results of the first few cases upon which anyone may operate, as quiet and circumspect working is only acquired after some time."

"To the difficulty just named hitherto the disadvantage was added of a large wounded surface on the convexity being left until cicatrization had taken place, and not rarely even afterwards formation of crusts became an incessant source of subjective troubles for the patient. One could not help feeling sometimes that the price which the patient had to pay in order to obtain in course of time a free passage through the nose was rather too costly."

Hajek then proceeds to explain that by the new modification which he now introduces into the Krieg-Bönningshaus operation, and which consists in keeping the mucous membrane on the convex side intact, this disadvantage is entirely done away with. He admits, however, in opposition to the opinion of his assistant, Dr. Menzel, who describes the modification in full in a paper which immediately follows Hajek's own communication in the new volume of the 'Archiv,' that the technique of the Krieg-Bönningshaus operation is thereby not only *not* rendered any easier, but on the contrary made somewhat more difficult!

In view of the novelty of Hajek's suggestions, and the fact expressly emphasized by him that familiarity with this operation can only be gained by protracted experience, I of course refrain from expressing any opinion concerning it. It will have to be practically tested, and its value determined. A few facts, however, are, I think, tolerably clear from all that I have said so far, viz. (1) that it seems there are actual practical difficulties in dealing with many cases of nasal stenosis; (2) that no universally acknowledged method of operation apparently exists; and (3) that the difficulties of the after-treatment have been found to be considerable by a number of competent observers, independently of one another. I emphasize the last-named fact particularly for this reason, that I expect we shall hear in the discussion some expressions of surprise that anybody should have met with such difficulties as those described, coupled with the statement that the speakers had never encountered them. I should of course not doubt such statements, but would appeal to the lucky ones, who possess so enviable a record, to describe in full detail to their less fortunate brethren by the adoption of what method they had obtained their universally satisfactory results.

(*To be continued.*)

## BRITISH MEDICAL ASSOCIATION.

*Seventy-first Annual Meeting, held at Swansea, July 28-31, 1903.*

### SECTION OF LARYNGOLOGY AND OTOTOLOGY.

PATRICK WATSON WILLIAMS, M.D., President.

*(Continued from page 945, Vol. xiii).*

#### **Discussion on the Technique of Operations on the Temporal Bone in Suppurative Middle-Ear Disease.**

DR. MCBRIDE said: The subject we are about to discuss has so many aspects, and has of late years been the cause of so much literary activity, that it is somewhat difficult to introduce it in anything like a satisfactory manner without very seriously infringing the laws relating to the time allowed for communications. It is virtually essential to study operations upon the temporal bone from the historical aspect, for in this way only can I hope to interest an audience of specialists whose knowledge of recent literature equals, if it does not exceed my own. Of course, as you are aware, the first operation suggested was opening into the mastoid cells, and, curiously enough, it is said to have been proposed in 1649 by Riolanus as a remedy in cases of occlusion of the Eustachian tube. Somewhere between 1750 and 1774 Petit, a French surgeon, however, performed the operation for the evacuation of pus. Schwartze<sup>1</sup> quotes from Petit's work, published after his death in 1774, as follows: "J'appliquai le perforatif sur l'os qui paraissait sain, a cela d'une rougeur erysipelateuse dans l'etendue d'un quart d'écu; a peine eus-je usé la table externe, qu'il sortit une sanie puante et séreuse; l'exfoliation se fit dans son temps et le malade guerit. On peut juger par la combien j'ai épargné de douleurs au malade et de combien j'ai abrégé sa guérison." About the same period Morand seems to have opened the mastoid and evacuated an intracranial abscess. In 1776 Jasser, a Prussian military surgeon, apparently ignorant of the work of his French predecessors, opened a carious mastoid with a probe. As Schwartze<sup>2</sup> points out, he was probably ignorant of the anatomy of the parts, as he was such startled because fluid injected into the sinus ran out at the nose. The result, however, was so gratifying that the patient insisted upon having the opposite ear operated on, as here also there was deafness and chronic discharge. This operation was performed through a

<sup>1</sup> Die chirurgischen Krankheiten des Ohres, p. 330.

<sup>2</sup> Op. cit.

healthy cortex by means of a trochar, and in this instance, too, the result was most satisfactory. Afterwards perforation of the mastoid seems to have been employed as a remedy for deafness until 1791, when enthusiasm was checked by the death of Berger, the King of Denmark's physician, who insisted upon having the operation performed upon himself in order to cure impaired hearing and tinnitus. The mastoid seems to have been small and sclerosed, and the unfortunate patient died of meningitis. In 1792 Arneman, of Göttingen,<sup>3</sup> quoted by Roosa, laid down the following indications for boring through the mastoid process, as he called it:

1. In any case of absolute deafness, or in any case where the impairment of hearing is constantly increasing, and for which all other remedies have been used without effect.

2. When in case of an ulcer or suppuration of the ear, the morbid material has become collected in the cells of the mastoid, or the cells have become carious.

3. If the normal mucous secretion has become hardened or collected in excessive quantity.

4. In cases where pain and noise, which would finally destroy the hearing have existed in the ear for a very long time.

5. In cases of stoppage of the Eustachian tube not remedied by injections.

Owing, however, to the unfortunate fate of Berger, the operation lapsed for many years, and an abortive attempt by Dezeimeris<sup>4</sup> of Paris to revive it with a view to relieving deafness, failed, although he collected 14 cases in which the results were as follows: 3 without effect, 2 resulting in improved hearing, and 9 with entirely satisfactory results as regards the deafness. It is tempting to turn aside for a moment to comment on these statistics. We know now that mastoid operations rarely produce great improvement in the hearing of the very deaf, and yet we find an author claiming this large percentage of cures. It is difficult to avoid speculations as to whether human nature has changed since 1830, or whether in the glowing accounts of more modern surgery allowance should not often be made for the enthusiasm of the pioneer, or the unconscious bias of the ardent advocate.

To us it must be interesting to note the verdict upon the mastoid operation given by our greatest workers of the middle of last century—Wilde and Toynbee. The former<sup>5</sup> wrote: "In 1793, Jasser revived the old operation of perforation of the mastoid process for the

<sup>3</sup> Treatise on Diseases of the Ear, p. 507.

<sup>4</sup> Schwartz, *op. cit.*

<sup>5</sup> Aural Surgery, 1853, p. 19.

purpose of injecting the middle ear; but as the success attending this procedure must be very doubtful and the hazard very great, it is never resorted to in the present day." Seven years later, Toynbee<sup>6</sup> defined his position as follows: "I have never performed this operation, but I should not scruple to do so in a case where the life of the patient was threatened."

About, and before the same period, the operation was condemned on the Continent by Itard, Bonnafont, and Rau, among aurists; and by Dieffenbach (1848) among surgeons.<sup>7</sup> In 1860 Forget and von Troeltsch both advocated the operation, the former recording a case which he had operated upon in 1849. In 1863 Pagenstecher's work appeared; in 1864 Follin published one successful case, and in 1869, Lücke opened three mastoids with a trocar. In 1868 James Hinton, the celebrated English aurist, recorded a successful case.<sup>8</sup> According to Roosa,<sup>9</sup> Ludwig Mayer was the first German surgeon who really opened the mastoid in 1864, although he admits that von Troeltsch and Schwartz had previously done so, but that they used only probes, disease having done what was required. While Roosa is inclined to attribute the revival of the operation to such pioneers as Crosby in America, Hinton in England, Triquet and Follin in France, and Mayer and Jacoby in Germany, there can, I think, be no doubt that the mastoid operation and its indications were first elaborated by Schwartz of Halle, who is still an active worker. Almost from the time that this observer published his first series of fifty cases in the *Arch. f. Ohrenheilk.*, Vol. X, the mastoid operation became recognized as valuable, although its full significance only began to dawn upon the surgical world at that time.

The actual methods of operating employed by these pioneers of mastoid surgery were various. The early efforts seem sometimes to have consisted of breaking down already carious bone with a probe, for example, Jasser, von Troeltsch; while in cases where this was not possible, trocars or borers were employed (Jasser, Pagenstecher). The mallet and gouge were, however, employed by Petit, Forget (1849), Billroth (1867), and Rouge (1869). As we all know, this is the method recommended by Schwartz, and still employed by most operators, with or without the addition of the dental bur. Schwartz's first communication on the mastoid operation appeared in Vol. VII of the *Arch. f. Ohrenheilk.*, and he was then able to collect 59 cases in which it had been performed, 13 of these being

<sup>6</sup> Diseases of the Ear, p. 341.

<sup>7</sup> Schwartz, op. cit.

<sup>8</sup> Med. Chir. Trans., 1868, p. 231.

<sup>9</sup> Op. cit.

his own. In Vols. X, XI, XII, XIII, XIV, XVI, XVII, XVIII, and XIX he continued to furnish reports of his work and results. It is almost unnecessary to remind an audience of specialists that Schwartze recommended reaching the antrum from a point a little behind the suprameatal spine,<sup>10</sup> where the bone usually shows several openings for vessels.

As is well known, this operation was performed for both acute and chronic cases at first, and in its earlier days drainage tubes were used where we now employ gauze packing. Irrigation also formed an accepted feature in the after-treatment. Probably most of us only employ Schwartze's method now in acute and subacute cases, and the younger generation of aurists have probably never seen a chronic case treated on these lines. The difficulty was to keep the mastoid fistula pervious, and for this purpose it was customary to use a lead plug. This was removed once or twice a day, and irrigation practiced with an antiseptic solution. Looking back upon cases so treated I can recall successes in extremely chronic cases, but the plug had usually to be worn for a very long time. I was rather surprised and interested the other day to find in a report from Schwartze's clinic<sup>11</sup> that the original method is still used there in chronic cases, uncomplicated by the presence of cholesteatoma, where there is no perforation at the upper pole, or in the posterior superior quadrant of the membrane. In view of the large experience obtainable by operators in this clinic the statement is worthy of all consideration, more particularly when we have to deal with cases in which a good amount of hearing power exists.

As before said, the general concensus of opinion has of late years been towards employing simple opening of the antrum, only in acute and subacute cases, if we except Macewen.<sup>12</sup> This author operates with the bur, and by its use exposes the antrum. He then goes on to say: "If the state of the middle ear, previously ascertained by auriscopic examination, renders it desirable to open into the tympanic attic, this may be done by means of a fine bur applied to the junction of the roof with the outer wall of the antral passage. Neither the floor of the passage nor its inner wall must be encroached on lest the facial nerve or the semicircular canal be injured. Sufficient bone ought to be removed to freely expose the attic. The tegmen covering the tympanic cavity can then be examined by means of a beam of electric light. The antral passage is in many instances sufficiently wide without further enlargement to per-

<sup>10</sup> Chir. Erkrankungen des Ohres., p. 340.

<sup>11</sup> Grunert and Schultze, Arch. f. Ohrenheilk., lvii, p. 280, 1903.

<sup>12</sup> Pyogenic Diseases of the Brain and Spinal Cord, 1893.

mit of the thorough cleansing of the attic and the remainder of the tympanic cavity. If the malleus and incus are eroded their mucous membrane is destroyed, and they are covered with granulation tissue, and their ligaments are softened. They likewise can be easily removed through the antral passage by means of minute hooks and ear scoops, etc."

Now I may frankly say that this appears to me a most tedious method, as I should think the communication with the tympanum would rarely without great enlargement admit of a satisfactory examination of the attic. As another modification in the technique of the simple Schwartze operation may be mentioned the suggestion of Clarence Blake,<sup>13</sup> who allows the wound to fill with blood and then to heal. In one instance this was accomplished in four days. I have never seen a case myself where it seemed justifiable to adopt this method, nor have I read of its having been tried by others. Again, as has been pointed out by Elsworth,<sup>14</sup> and several French authors, among whom we may mention Toubert,<sup>15</sup> Lombard, and Laurens, there are frequently cells seated in the posterior and upper part of the mastoid, the existence of which the operator should bear in mind in view of their being possible foci of suppuration and giving rise to symptoms after the middle-ear cavities have been apparently drained. Another modification of technique is required in the form of suppuration now known as Bezold's. In 1881<sup>16</sup> this author described perforation of the inner wall of the mastoid in its lowest part and resulting burrowing of pus below the muscles of the neck. It has seemed to me that the treatment of this form is somewhat slurred over in many of our text-books. The method I have always so far found successful is to open up the mastoid, clear out the antrum if necessary, and remove all diseased parts of the process itself. This leads to the discovery of the breach in the inner and lower wall. As its edges are carious, this may be enlarged with a sharp spoon, and a long probe provided with an eye and bent at its extremity passed down into the abscess cavity. When it is felt that the probe has reached its lower part, it is made to project over the skin either in front or behind the sterno-mastoid and cut down upon. A drainage tube is then attached to the probe and drawn through.

This, I think, concludes the consideration of the more important pure modifications of Schwartze's original operation, if, perhaps, we except the proposal of Malherbe<sup>17</sup> to open into the middle ear by

<sup>13</sup> *Journal of Laryngology*, 1899, p. 310.

<sup>14</sup> Graduation Thesis.

<sup>15</sup> *Ann. des Mal. de l'Oreille*, June, 1902.

<sup>16</sup> *Deut. med. Woch.*, 1881, p. 28.

<sup>17</sup> *Arch. Internat. de Laryngologie*, etc., March, April, 1897.



way of the mastoid in order to sever adhesions in chronic non-suppurative middle-ear catarrh.

We must now pass to the group of operations known as radical and which have this in common, that in all of them removal of the posterior wall of the meatus is carried out. It is interesting to note that in 1877 Wolf suggested opening the mastoid by way of the meatus. The real stimulus to the present method of operating was, however, supplied by Küster,<sup>18</sup> the Berlin surgeon, who suggested reaching the middle ear by removing the posterior wall of the external auditory passage. In the same year von Bergmann described his method, in which the upper wall was removed as well. These operations, however, were obviously incomplete, and the next step in advance was taken by Zaufal, who began to operate in February of 1889, according to the method which bears his name. In April, 1890, Hartmann seems to have shown a patient who was treated by establishing a free communication between the meatus, tympanum and antrum, and in the International Congress of 1890, Stacke, Hessler, and Jansen advocated the same principle, the first giving his special method of carrying it into effect.

In Zaufal's original operation the membranous lining of the meatus was removed; he chiseled away the mastoid, layer by layer, entering the blade 1 cm. behind the meatus and working towards it. If he thus reached the antrum, he completed the operation by means of specially delicate but strong bone forceps. Sometimes he worked towards the antrum, if it lay deep, from the upper and posterior part of the artificial bone orifice. The outer wall of the attic was removed by means of the Luer's forceps already referred to. While, therefore, Zaufal may be said to have first initiated the modern radical mastoid operation, this fact does not detract from the merit of Stacke, who, in 1890, proposed very much the same operation, which he still advocates. I may mention that in his first paper<sup>19</sup> he recommended turning down a flap from the membranous meatus and making it lie on the floor of the cavity produced by removal of the posterior wall, opening of the antrum, and removal of the outer wall of the attic.

In 1897 Stacke published his monograph,<sup>20</sup> and in this work the history of the various modifications of his original proceeding is given. These were in the main confined to modifications of the flaps, which are produced from the membranous and cartilaginous meatus.

<sup>18</sup> Ueber die Grundsätze der Behandlung von Eiterungen in starrwandigen Hohlen, Deut. med. Woch., 1889.

<sup>19</sup> Verhandlungen des Internationalen Med. Cong., 1890, Abt. xiii, p. 45.

<sup>20</sup> Die operative Freilegung der Mittelohrräume, Tübingen, 1897.

In Stacke's earliest operations he simply slit the posterior wall of the tube produced by detaching the soft parts from the bone, which detachment, be it observed, is now confined to the posterior wall, although at one time it embraced the anterior as well. However, this simple method was abandoned in favor of the quadrilateral flap formed by incising the posterior superior wall from within outwards to the concha, and then making a cut downwards and backwards at right angles to it. Panse proposed a method by which the post-auricular wound was at once stitched. He simply produced a tongue-shaped flap by two parallel incisions along the superior and inferior walls, the posterior wound was closed, and the flap kept in contact with the outer surface of the cavity by stitches. Körner, some years later, modified this proceeding in so far that he cut into the cartilage, and so the cartilaginous meatus became much widened. Panse has more recently suggested slitting up the posterior wall of the membranous canal to the edge of the auricle, and then forming two flaps by means of two incisions at right angles to the first. In 1898 Siebenmann described a modification of Körner's method. He makes an incision through the center of the posterior wall of the membranous meatus. He then, when the cartilage is reached, branches off upwards and downwards. If the bone cavity be moderate in size he resects the cartilage and plugs the triangular flap backwards. Whether he stitches the posterior wound is not clear, but presumably he does. If the cavity be large he cuts off the skin flap and stitches back the auricle. I must now pass from this question of dealing with the membranous and cartilaginous meatus, observing that it has only been possible to consider such modifications as involve a novel principle.

Certain authors have advocated the creation of a permanent post-auricular opening, more particularly when dealing with cholesteatoma. Probably the first author to draw attention to this method was Siebenmann in 1893. He turned over a lower flap for the meatus, stitched this to the lower edge of the skin incision, united the edges of skin formed by cutting the flap, and finally turned a flap, which he cut from the mastoid region with its attachment above into the upper part of the wound. He at the same time applied large grafts to the osseous cavity. Here, again, various other methods have been suggested for arriving at the same result, for example, turning a flap of skin into the upper part of the wound and periosteum into the lower (Stacke), but space does not permit a consideration of such less important details. It is, however, noteworthy that Trautmann in 1900<sup>21</sup> advocated producing a permanent opening in all mastoid

21 Arch. f. Ohrenheilk., vol. xlviii, p. 1.

operations and closing it later by a plastic proceeding. At first he employed Siebenmann's method, but later he merely stitched the quadrilateral meatal flap to the lower edge of the external wound.

At this point we turn naturally to the methods of closing post-auricular openings. For very small ones the method of Mosetig Moorhof may be used. A flap corresponding to the size of the defect is dissected off from the skin below the orifice. The edges of the latter are rawed and the flap turned upwards, the skin surface being inwards. The edges of the wound produced are brought together, while the margins of the flap are kept *in situ* with four sutures. Passow's operation consists in cutting round the orifice near the edge; the skin, together with periosteum, is then detached towards the opening and the margins of the flap so produced are united; afterwards the outer edges are also sutured. Trautmann has slightly modified this method in that he makes his original incision wide of the edge. Lermoyez<sup>22</sup> recommends the following method: A quadrilateral flap is made from the posterior margin of the opening and turned in, another is made from the anterior part and cut off. The auricle which has supplied most of the second flap is then pulled back and stitched, so that the bleeding surfaces are in apposition. As a good deal of tension occurs, a semilunar incision is made behind and above the sutures. In one or two cases in which the defects were too large to employ any of the above methods, I have adopted a somewhat different plan. An incision is made behind, parallel to the posterior margin of the opening, and rather further away from it than its own breadth. The skin between incision and edge is then undermined, so that, while it attached above and below, its center is freely movable. It must of course, be detached from the posterior edge of the opening, and can then be slid forward and attached to the rawed anterior edge. This operation is not very elegant, and the inner surface is without epidermis, but the result obtained in one of my cases was extremely satisfactory. Of course, the wound behind the ear requires dressing until healing is complete. For closing the small openings, Frey seems to have found paraffin injection very satisfactory. He first causes bulging of the edges, and later brings them together. If they then be rawed, union results. In a general way our remarks have reached the technique of the mastoid operation as practiced today. I fancy that in radical operations most of us employ the gouge and mallet for the coarser part of the work, and use the bur for smoothing off rough edges and points. For the outer wall of the attic, the bent gouge used by Stacke seems to me

22 Ann. des Mal. de l'Oreille, etc., June, 1901.

particularly serviceable, as it is difficult to get a straight one to bite along the upper wall of the meatus. In many operations, too, Zaufal's modified bone forceps will be found of great value. It appears to me that the operator must not slavishly follow any one man or method, but that he should be prepared to adapt himself to the exigencies demanded by each case. As you are probably all aware, Ballance has revived the application of large grafts to the bone wound—a method first suggested by Siebenmann, and afterwards employed by Reinhard and Jansen. He, however, employs a different technique, which I need not describe, as, no doubt, all present are familiar with the original description as it appeared in the *Journal of Laryngology*, April, 1900, and the newer modifications as given in the *Lancet*, April 11th, 1903. I have not myself done a sufficient number of these operations to be able to give an authoritative criticism, but, no doubt, the employment of grafts does hasten epidermization, and in this way curtails after-treatment. Again, it is obvious that Ballance's method of grafting and closing the posterior wound is in some ways a distinct advance. I have not been able to see any great advantage in having the meatal flap turned upwards, and its fixation seems to me to add a further complication. The second operation is a disadvantage, but unavoidable, unless it should be found that it is equally advantageous to leave the original wound open until after the grafting.

Having thus considered the purely aural aspect of operations on the temporal bone, we naturally drift towards the treatment of intracranial suppurations. The simplest form in which this occurs, both as regards treatment and the minimum of risk, is when pus is found just within the bone and external to the dura mater. Those who have read accounts of recent mastoid operations will be aware that there is an increasing tendency to expose both the dura and lateral sinus. I will not say that this is recommended as a routine practice, but rather that it is not considered necessary to take great precautions against it, and that the least justification for the adoption of the method is allowed to influence the operator. My own practice is to avoid such exposure, unless definite indications exist or it is required in order to remove all carious bone. In such operations we may find a definite extradural collection of pus, or we may find a drop or two of very fetid pus around the lateral sinus. In this last-named class of cases I have seen very high temperature disappear immediately after the evacuation of a very small amount—not more than a drop or two. Jansen<sup>23</sup> describes cases in which deep

23 Arch. f. Ohrenheilk, vol. xxxv., p. 280, 1893.

extra dural collections of pus in the posterior fossa could only be opened by following a fistula through the labyrinth. Of perhaps greater significance are cerebral and cerebellar abscesses. The first record of an otitic intracranial abscess successfully treated by operation dates as far back as 1768 by Morand, then after an interval of eighty years (1848) another case was described by Roux.<sup>24</sup> From this we have a long interval until a case was recorded by Schon-dorff,<sup>25</sup> and another by Truckenbrod, operated on by Schede.<sup>26</sup> It is, however, to be noted that in these the operators were all guided by the existence of external fistulæ. The development of intracranial surgery for the cure of otitic cerebral abscess from this on has been, I am pleased to say, a peculiarly British product, for British surgeons were the first to treat cases in which there was no external guide. We may, I think, consider Hulke as our pioneer, but unfortunately his cases were none of them successful.<sup>27</sup> The first actual success was published by Barker, who opened a temporo-sphenoidal abscess at a point  $1\frac{1}{4}$  inches behind and above the meatus, and the second was operated on by Caird, of Edinburgh.<sup>28</sup> Then, in 1887 and 1888 Macewen published three cases with one recovery, while he again was followed by Barker (second case), Horsley, and Cathcart. Only afterwards did von Bergmann bring out his monograph in which he described cases of his own. In 1887<sup>29</sup> I published, in conjunction with Mr. Miller, a paper in which I suggested that as the intracranial abscess is usually in contact with diseased bone, and as this diseased bone is commonly found near the tegmen, this region should be explored. Operations on these lines were actually carried out at my suggestion by Mr. Miller. As this suggestion is now usually attributed to Körner, who made it in 1889,<sup>30</sup> I take the liberty of quoting my own words more than two years earlier: "It must be remembered that in most of these cases the abscess is in intimate relation with the roof of the tympanum, and I am strongly of opinion that it is desirable to reach this spot with as little injury to the brain and its membranes as possible. It appears to me that this end can best be attained by making a dissection of the auricle downwards, so as to define the osseous meatus. When this has been done an opening should be made just above and in front of it—a proceeding

24 Die ititischen Erkrankungen des Hirns, etc., by Körner, 1894.

25 Arch. f. klin. Chir., 1884.

26 Archives of Otology, 1886.

27 Lancet, July 3d, 1886.

28 British Medical Journal, February 12, 1887.

29 The Diagnosis and Treatment of Cerebral Abscess due to Ear Disease, Edin. Med. Journ., June, 1887.

30 Arch. f. Ohrenheilk., vol. xxix, p. 19.

which exposes the dura mater within a very short distance of the roof of the tympanum, with which the great majority of cerebral abscesses are in intimate relation, without any danger of wounding the middle meningeal artery." It may be noted that Körner proposed to attain the same result by removal of the upper wall of the meatus. Röpke calls attention to my work in this connection in the following Passage: "McBride had already, in 1887, stated that most temporo-sphenoidal abscesses are in close relation with the tegmen tympani. Independently, Körner, in 1889, propounded the same thing," etc.<sup>31</sup> I think most of you will agree with me when I say that now there is an ever-increasing tendency—if time permits—to begin, even in cases of suspected abscess by laying bare the middle ear cavities, that all diseased bone should be taken away, and that in many cases we shall thus gain valuable information, if, indeed, we cannot complete the treatment. If there be an abscess we are quite likely to reach it by this method, and, having reached it, we can decide whether a second operation through the skull is desirable or not. The treatment of cerebellar abscess is a much more difficult matter. Hulke<sup>32</sup> advised trephining "two centimeters behind and inwards from the mastoid process, the crown of the trephine encroaching on the inferior curved line." Dean, in doubtful cases, suggested removing bone with a trephine  $1\frac{1}{4}$  inch behind and  $\frac{1}{2}$  inch above the center of the external auditory meatus, so that both cerebrum and cerebellum may be explored from the same wound. Macewen seems in most cases to explore the sigmoid sinus and, either through the opening thus made or by trephining behind the mastoid, gains access to the cerebellum.

The history of operations upon the lateral sinus dates from recent times. In 1880 Zaufal proposed tying the internal jugular and removing infective material from the sigmoid sinus; in 1884 he seems to have had a case in which he found the sinus already opened by suppuration.<sup>33</sup> He washed it out, but the jugular was not tied on this occasion, and the patient seems to have succumbed to pneumonia. In 1886 Horsley independently suggested tying the jugular, and in 1889 Arbuthnot Lane published one successful case, while Ballance was in the same year able to report upon four patients—two cured and two who succumbed. It seems to me, therefore, that operative treatment of sinus thrombosis owes at least as much to England as to Germany. It is rather remarkable that Zaufal's original suggestion should have been scouted by German surgeons, and that we do not

<sup>31</sup> Zur Operation des otitischen Grosshirn-abscesses, Zeits. f. d. Ohrenheilk., 1899, p. 97.

<sup>32</sup> Op. cit.

<sup>33</sup> Prag. med. Woch., 1884, p. 474.

find a case reported from the Continent until 1890, when Salzer<sup>34</sup> published one.

I do not think I need dwell long on the technique of the operation as at present practiced, nor does it come within the province of this paper to discuss the advantages and disadvantages of ligation of the jugular. It is now usual to expose the sinus by extending the wound already made in opening up the middle ear backwards. The appearance of the vessel and the presence or absence of pulsation are carefully noted. When a suppurating thrombus is contained, the walls often show a yellow coloration. Whether the absence of pulsation be of much value is a doubtful point. If inspection and palpation fail to give sufficient information exploratory puncture may be justifiable. It must, however, be borne in mind that it is no light risk to pass even a sterilized needle under the circumstances present in this operation, for the sinus is in immediate contact in most cases with a septic middle ear. After the sinus has been exposed and found to contain fluid blood, it may be desirable to ascertain whether or not the jugular bulb be thrombosed. Whiting has suggested the following test: Compressing the vessel as near the bulb as possible, he draws his finger upwards so as to empty it; the compression is then removed, and if blood enters from below it is assumed that the bulb is not thrombosed. Various interesting questions next confront us—for example, is it well to tie the jugular? If we do not do so, is it right to attempt removal of the clot below the point of opening, etc.? But it seems to me that these hardly come within the scope of our subject. Of late, however, it has been proposed to expose the jugular bulb by operation on the temporal bone. Grunert<sup>35</sup> begins by opening the mastoid, exposing the sinus, and ligaturing the jugular. He then unites the retroauricular and cervical incisions, resects the tip of the mastoid, pulls forward the soft parts, and loosens them to the jugular foramen. Finally, he removes sufficient bone to expose the bulb. Piffi has described another mode of effecting the same object. After the middle ear cavities have been exposed according to Zaufal's method the incision is prolonged downwards, periosteum of the lower and anterior parts of the osseous meatus is then detached up to the Glas-erian fissure. The soft parts are also detached from the lower and anterior parts of the osseous meatus internally. They are pushed forward, and, with small bone forceps, the osseous wall is removed to the hypo-tympanic recess. If too little space be thus afforded,

34 Korner, *op. cit.*, p. 64.

35 Arch. f. Ohrenheilk., vol. liii, p. 286.



the styloid process may be detached. As a rule, the jugular is now exposed. The further steps of the operation consist in removal of the outer wall of bone.

This paper, although I feel that the question at issue has not been thoroughly discussed owing to lack of space, has already exceeded the time limit. I imagine that neither those who suggested the subject, nor those who undertook it—I can speak for myself at least—realized the space required, even to touch upon the technique of operations on the temporal bone in anything like a satisfactory manner. So far, I have attempted to refer to what I consider epoch-making operations, but I have had to avoid detailed descriptions; and, perhaps, in addressing an audience of specialists, such details were not required. Yet, after adopting such precautions, I still find I have transgressed the limit. The following cases, which, either from illustrating special points, or on account of their interest, may be appended:

CASE I.—H. R. was admitted to my ward in May, 1902, suffering from chronic middle-ear suppuration and mastoid complication. On the 28th a radical operation was performed and the wound left open. On June 18th the bone surface was grafted, and on July 28th the patient was discharged, the ear being quite dry, but a large permanent opening was left. In December, 1902, the patient was readmitted in order to have the perforation closed. The orifice was far too large for the operation of Mosetig-Moorhof, Passow, or Trautmann, and too large even, I thought, to offer a chance of success for the method of Lermoyez. I therefore adopted the following plan: A large semicircular incision was made behind the opening, allowing sufficient skin between the incision and posterior margin of the opening to more than cover it. The skin around the opening was freed at the edges, and then the part between the incision and the posterior margin was raised altogether from the subjacent tissue and brought forward, being stitched to the anterior margin, which had been previously rawed. The stitches were removed in a few days, and on January 29th of this year the parts were in perfect apposition, although there was a degree of puckering.

This case illustrates two points, namely:

1. That if grafting be employed an unexpectedly large opening may remain if the wound be left open and dressed from behind.
2. That the method of closing the large opening adopted in this case may be quite successful, although by using it we are obliged to present a raw skin surface inwards.

CASE II.—M. G., a young man of 20. As the patient was very ill a satisfactory history was not available, and I regret to say that my notes do not refer to the character of the discharge from the left ear. The patient came to the hospital at 1 p. m. on February 22nd, 1894. His temperature then was  $102.4^{\circ}$ , and rose in the evening to  $106.2^{\circ}$ . On the 23d, as the history rather pointed to an acute process, Schwartze's operation was performed. The outer bone was sclerosed; the lateral sinus was exposed and around it was a small quantity of excessively fetid pus. The sinus did not pulsate. From the somewhat defective notes preserved of this case I find that the ear was dressed on the 24th and that the sinus was then seen to pulsate. The temperature after the operation fell to  $99.4^{\circ}$ , but rose to  $102.4^{\circ}$  in the evening; on the 26th pulsation was still visible; on March 9th the wound was comparatively sweet, and, to make a long story short, he was dismissed from the ward on April 20th, but still came up to have the wound dressed.

I have ventured to bring this case, incomplete as are my records, before you for several reasons. In the first place, it illustrates a point I previously referred to—namely, that a small quantity of fetid pus around the lateral sinus may account for very high temperatures, and that in such cases cure may result without further treatment than removing the septic material. It would, in my opinion, have been a very grave error in the above case had I made an exploratory puncture into the sinus at the time of operation.

CASE III.—J. C., aged 30, a teacher, was admitted to my ward on June 12th, 1894, complaining of pain behind the left ear and discharge from it. According to the history he gave his present illness began with discharge from the ear three weeks before, the result of a severe cold. For the last ten days before his admission he had suffered from pain behind the ear. When admitted he looked extremely ill; was dull and stupid. For two days there had been less pain over the mastoid, without any improvement in the other symptoms. His temperature on June 12th (date of admission) was  $101^{\circ}$  at night, with a pulse rate of 74 to 80, and respiration 16 to 18. On the morning of June 13th I expressed the opinion that the relief of mastoid pain was probably due to bursting of retained secretion inwards. In the left ear there were granulations, a discovery which rather militated against the patient's history, which pointed to acute middle-ear inflammation. There was now only slight mastoid tenderness, while two days before it had been very marked. Examination of the eyes by Dr. Mackay showed "distinct optic neuritis in an early stage, and a patch of opaque nerve fibres." On June 13th

I opened the mastoid and found a large extra-dural abscess around the lateral sinus, which pulsated freely. There was not only pus but much cholesteatomatous material in contact with the dura. The wound was dressed with iodoform and boracic powders and stuffed with iodoform gauze, as also was, of course, the meatus. Patient was sick twice overnight. The wound was dressed on June 14th, and a good deal of cholesteatomatous material was removed. There was still marked pulsation, which, however, disappeared in two days. I need not weary you by further details. The patient was discharged in September, during my absence, but came up as an out-patient. On July 20th there was still "blurring of the surface and borders of the discs," but Dr. Mackay, who kindly made the examination, thought that the changes were less marked than on the previous occasion.

I have given merely the interesting facts in this case. The general evidence of illness associated with relief of pain, and without external swelling is, in my experience, often an indication that pus has penetrated the cranial cavity. The cessation of pulsation of the lateral sinus after a few days is a phenomenon with which we are all familiar, and is, I presume, due to the formation of adhesions. In this patient there was certainly a very unusual amount of cholesteatomatous material in contact with the sinus and dura. It is somewhat tempting to speculate upon the chain and order of events which led to this, but I shall restrain the inclination, as I have already occupied too much time.

The next case I bring forward to show how cholesteatoma may penetrate not only the bone but the dura.

CASE IV.—E. L., aged 49, was an old patient of mine who suffered from chronic middle-ear suppuration. In 1892 I removed the mal-  
leus from the right ear, and this was followed by improved hearing and cessation of discharge. In April, 1900, she had influenza, and after this otorrhœa returned, but according to patient the secretion was odourless. On July 14th, 1900, she was admitted to my ward, and had then distinct, although not complete, paresis of the right side of the face. She suffered a good deal from tinnitus, but there was neither pain nor giddiness. The aural discharge was without fetor; no swelling or tenderness over mastoid. The meatus was blocked by cholesteatomatous material, which was removed partly with a blunt hook, but chiefly by syringing after softening. Considerable improvement in hearing resulted. On July 18th a bluish, cicatrized inner wall of tympanum was seen, but on the posterior wall of the meatus was a granulation. On the next day a good deal of non-fetid debris was syringed out. When the speculum was pressed upon,

another piece of non-fetid material came into view, and was removed with forceps. On July 21st there was again a quantity of material in the ear, and it was removed by syringing and again not fetid. On the 22d the patient was operated upon by me. The preliminary steps were those usual in Stacke's operation. After the osseous meatus had been exposed, it was found that a Stacke's protector could be passed backwards into a cavity, the instrument evidently passing through a loss of substance in the posterior wall. Bone was then removed from the posterior and upper wall inwards as far as the protector. It was then found that the latter lay in a large cavity filled with what appeared to be cholesteatomatous material. This was removed as far as possible with a sharp spoon, but no undue force was used. Here again the debris was free from smell. The removed material seemed also to contain granulation tissue, and towards the end what looked like brain substance. At no time was there the slightest fetor. It appeared to me that if the brain was really exposed the best thing to do was to cover it as far as possible with skin, and this I did, taking flaps from the posterior and anterior edges of the wound. The latter was then lightly plugged with sterilized gauze, as also was the meatus. During the afternoon there was considerable oozing of watery fluid, presumably cerebro-spinal; this, however, only lasted for an hour or two; the temperature at night was 100°. After this she made practically an uninterrupted recovery. Indeed, I saw her in March of this year, and she was then perfectly well. The flap which covered the part where the brain had been exposed continued to pulsate and the skin from the posterior surface of the wound had been pushed forward so that what was at first a large cavity had now its posterior and anterior walls almost in apposition. At the time of operation some of the suspected brain substance was laid aside, and Dr. Noel Paton kindly supplied the following report: "Brain tissue and a small piece of tissue loaded with leucocytes, no cholesterol crystals."

I regret extremely that no microscopic examination of the non-fetid, cholesteatoma-like masses, which were first removed, was made. The whole case bristles with difficulties, and the most striking is the absence of fetor. Here, again, I must for the present refrain from speculation, and content myself by having brought before you a case of an unusual character, and necessitating, from the unexpected condition disclosed by operation, a special modification of technique. The one point which seemed to me fairly certain was that at the time of operation the dura had already disappeared.

The following brief notes are of interest in view of the somewhat unusual course run by a case of extradural abscess.

CASE V.—J. M. was admitted to my wards in October, 1902, with the following history: he had never suffered from his ear until ten weeks before. He then had a cold in his head, and after a rigor noticed discharge from his left ear. There seemed never to have been pain. About a week before admission he observed a swelling behind the ear, and was sent in by his doctor. On examination there was marked swelling over the mastoid, and only slight tenderness on very firm pressure over the tip, and 1 inch higher up. There was fluctuation between these two points. The ear contained discharge, and after its removal a granulation was found attached to the posterior wall, which prevented a clear view of the membrane. Hearing defective (loud voice, 18 feet); tuning fork was heard better by air than by bone conduction, but was perceived better by affected ear from the middle line. On operating I found pus coming through the bone about 2 inches behind the mastoid. A probe passed reached the dura. The opening was enlarged and the edges smoothed with a bur, and as a result more pus escaped. There was no fetor. The mastoid antrum was not opened, as I thought this might be done later if required, and because I assumed that the pus had first entered the cranial cavity, and then found its way out as described. The dressing consisted of light plugging with iodoform gauze. When this was first changed a large cavity was found discharging pus, with evident pulsation. There was, however, no tendency for the dura to present at the opening. The subsequent history was gradual diminution of discharge from the ear, disappearance of granulation, and finally complete dryness of the ear. By January 4th, 1903, all pulsation had disappeared from the opening behind the mastoid, and the patient was during my absence transferred to the convalescent.

The course of this case was peculiar in the following points:

1. Drainage from the mastoid had occurred by a very circuitous route.
2. The post-auricular extradural abscess filled up very slowly, and, curiously enough, the dura never came near the external orifice, there being for long an apparently deep cavity.
3. There were very few general symptoms, the eyes were normal, and there was never anything noteworthy in pulse or temperature.

I must say this case was rather puzzling to me, and I felt inclined to perform a secondary exploratory operation. However, the patient improved so steadily that I hardly felt justified in insisting upon the necessity for this, and the man was naturally very adverse to further surgery; more particularly, as I could not say that I thought it

absolutely necessary. Unfortunately I cannot give his case up to the present, as I should have liked to do. Still, I have thought the above notes of sufficient interest to warrant bringing them before you. I shall endeavor to ascertain the subsequent history, and, if it arrives in time, give it as a footnote.

The next case to which I desire to direct attention is that of a cerebral abscess opened through the mastoid wound.

CASE VI.—J. M., aged 19, was admitted to my wards on July 20th, 1901, complaining of "running ear and sore head." The previous history was vague, but the present illness began three weeks before with great pain in the ear, which lasted a fortnight and then was relieved by discharge. Pain, however, then occurred in the head and right temple and continued up to date of admission. There was no marked tenderness, excepting at the base of the right mastoid. The patient also complained of giddiness, which had been present about a week. The right pupil was rather irregular, and Dr. Sym reported the presence of optic neuritis in the left eye and a condition suggestive of commencing optic neuritis in the right. The bowels were constipated, the temperature, when his case was taken, was 101.4°F., and the pulse 64. There was also slight photophobia, which began two weeks before. The right meatus contained very fetid pus and epithelium, so that the exact site of the perforation was not made out. As this was not a case admitting of delay I operated on the following day by Zaufal's method, freely exposing the middle-ear cavities and removing diseased bone. On probing in the region of the tegmen a fistula was discovered, through which pus poured; the orifice was enlarged and all softened bone removed with the sharp spoon; a small sequestrum was removed which looked very like the tegmen, and a small slough also came away quite like a piece of dura. In this way, a large temporo-sphenoidal abscess was opened. The cavity was syringed out gently and two tubes inserted. The subsequent course of the case was very favorable, and the patient was discharged on September 5th. On January 28th, 1902, Dr. Mackay reported both eyes normal, including the fundi.

I have referred to this case shortly in order to illustrate the extremely satisfactory results which may be attained by following up the disease along its track. A less satisfactory issue occurred in the following instance:

CASE VII.—D. S., a boy of 11, admitted to my wards on November 16th, 1897. The history was rather uncertain, but he appeared to have had a discharge from the right ear for two months. About three weeks before this diminished and then stopped. Afterwards



the patient had sharp pain in the ear, which continued although the discharge reappeared. A few days before admission a swelling was noticed behind the right ear and just before that period he was said to have had vomiting and headache. He was also stated to have lost flesh for three weeks. In the ear there was much fetid pus, and there was marked swelling over the mastoid with tenderness. The lad was drowsy and listless, but did not complain of much pain. On the following day (17th) I opened the mastoid, using Schwartze's method, but on the 18th the boy continued drowsy and the pulse was inclined to be slow. Examination of the discs showed some fullness of the veins on the right side. On the morning of the 19th the nurse noticed that the patient could hardly be roused. This condition developed into almost complete coma with dilated pupils, the dilatation being most marked on the right side. It was noted that this pupil was uninfluenced by light until the patient was partially roused, when it contracted. There was no evidence of paralysis, but the pulse was slow—54. In this case, by prolonging the original incision and curving it forward I laid bare the upper margin of the osseous meatus and the bone immediately above it, then removed a disc of bone with a half-inch trephine and exposed the dura, which did not pulsate. It was incised; a director was passed towards the region above the tegmen. Pus was found, and dressing forceps were introduced, and a large quantity of fetid matter was evacuated, immediately after which the pulse rose to 75. During the operation but before the skull was opened the patient had violent convulsions, apparently chiefly on left side. A drainage tube was introduced into the abscess and the parts dressed. Symptoms of compression again appeared in the afternoon; the pulse became intermittent, and the breathing assumed a Cheyne-Stokes character. I was summoned, and after removing the dressings found the tube had been forced out by intracranial pressure. A tube was reintroduced and stitched to the skin, and the symptoms were at once relieved. On the evening of the same day the lad seemed fairly well and was quite conscious; he was, however, inclined to be restless and irritable. On the 20th he seemed better as a whole. The wound was dressed and the abscess cavity gently syringed. On the 21st the condition was less favorable. He had passed a restless night, complaining of his head and leg; pulse was quick and compressible, pupils moderately contracted, and the right disc showed marked swelling of the veins; there was also tenderness over the nape of the neck. On the evening of the same day there was slight delirium, and next day he became unconscious, although capable of being, to some extent, aroused.



The coma became deeper, and next day he died. Necropsy revealed a huge temporo-sphenoidal abscess, which had ruptured into the lateral ventricle and filled it with pus. The matter had passed downwards into the fourth ventricle and there infected the meninges, and the under-surface of the pons and medulla were covered with pus.

In this case—looking back upon it—it would undoubtedly have been better to have performed an extensive radical operation at first, and in this way the abscess might have been tapped, as in the previous case.<sup>36</sup> Presumably, the rupture into the ventricle occurred just before the second operation, and the boy was then past saving. The case illustrates well how readily such an abscess may be reached by trephining just above the osseous meatus, thus reaching the common seat—that is, near the tegmen.

CASE VIII.—F. K., a boy of 11, was admitted to my wards on November 16th, 1901. He complained of pain in the head and noise in the left ear. Lately both of these symptoms had become worse. The ear had discharged off and on for six years, but deafness was first observed a year before admission. For a few days previous to examination stiffness of the neck was complained of. The discharge was said to have dated from a fall at the age of 7. He had aural polypi removed in the out-patient department several times during the previous year. On examination the left ear was found filled with granulations and foul discharge, and hearing on that side was much impaired. There was pain on pressure over the base of the mastoid, and on percussion 1 inch above and 2 inches behind the meatus. A slight tendency to fall to the left on walking was noted. On the evening of the 16th he had a rigor, and at 8 p. m. the temperature was 103.20°, afterwards rising another degree. On the morning of the 17th there was another rigor, with temperature of 102.20°. Examination of the eyes showed double optic neuritis, especially marked in the right eye. On the 17th a radical mastoid operation was performed. On the 18th temperature fluctuated between 99 to 104°; on the 19th, 98 to 104.8°; on the 20th, 97 to 105°. A blood count kindly done by Dr. Gulland showed marked leucocytosis (22,000 white cells). As this state of matters continued, the lateral sinus was exposed; exploratory puncture with hypodermic gave neither pus nor blood, but as further exposure showed a yellowish clot, a small incision was made through which non-fetid pus under tension escaped. The sinus was curetted upwards, and downwards and from above free bleeding occurred, none coming from below. The bleeding was stopped by pressure and the parts dressed.

<sup>36</sup> The comparatively recent history had made me select Schwartz's method.

The jugular was not tied. On the 26th there was no rigor; on the 27th, however, the temperature rose to 105°. After this there was a general tendency to improvement, but rises of pulse and temperature continued to occur at longer intervals until December 30th. On the last occasion, when the fever was marked (December 10th), there was headache with high temperature, probably depending in great part upon carious teeth, although there was still fairly marked leucocytosis (18,600). On January 3d he was able to be up for a little, and after this rapidly improved. On December 27th optic neuritis was present as at first, but on February 21st it had disappeared; on the 27th the patient was discharged. Cultures were made from the pus in the lateral sinus by Dr. Welch, and yielded colonies "which in many respects resembled a short form of the diphtheritic bacillus. I am not satisfied as to the character of the bacilli in question, and propose making further investigations" (report by Dr. Welch).

I have thus sketched in bare outline a very interesting example of lateral sinus thrombosis. The questions which arise in connection with it are:

1. Should the sinus have been explored at the first operation?
2. Should the jugular have been tied?

The first I am inclined to answer in the affirmative, more particularly as it was subsequently learned that the patient had had rigors at home. This is hardly the place to discuss the question of ligature of the jugular, but the abstention in this case was justified by the result. The most interesting feature was the temperature chart (two-hourly), which, however, time and relevance do not permit me now to discuss.

*(To be continued.)*

## SELECTED ABSTRACTS.

**The Bacteriology of Acute Otitis Media.**—E. C. ELLETT (Memphis)—*Jour. Eye, Ear and Throat Diseases*, July-Aug., 1903.

Ellett quotes the statement that "All that is known (of this subject) might be condensed into the statement that the streptococcus and pneumococcus are the microbes most frequently found in the early stage of an otorrhœ," and remarks that this is not the result obtained by all observers, or of his own studies. His own work comprises examinations made in forty cases (ears) in private practice; all cases of acute otitis media.

He tabulates his results as follows: Staphylococcus (albus 13, aureus 9) 22. Pneumococcus 4, Proteus Vulgaris 1, Colon bacillus 2, Streptococcus 2, No Growth 5, Bacillus pyocyaneus 1.

The severity was not, in this series, directly related to the supposed virulence of the germ present. The two cases showing streptococci were the ears of a child with scarlet fever. Of the four pneumococcus cases, two were cases of mastoiditis, requiring operations; another had a sharp attack of mastoiditis, subsiding under antiseptic treatment and cold applications.

Ellett learns from his cases as follows:

1. All of the usual varieties of pyogenic organisms are associated with, apparently as the cause of, acute otitis media.
2. We can not foretell, with any certainty, from bacteriological study, which cases are, and which are not, liable to be accompanied by mastoid and other complications.
3. We cannot foretell with any certainty from the bacteriological study which cases are likely to prove severe and of long duration and when cases are to be mild and brief.
4. A classification of otitis media from a bacteriological point of view is possible, if care is used in securing the secretion; but the value of such a classification is questionable, since it affords no reliable indications for either treatment or prognosis.

EATON.

**Asthma Produced by Urethral Irritation and Stricture.**—G. L.

EATON (San Francisco)—*Occidental Med. Times*, Oct., 1903.

Several cases are reported, the asthmatic attacks were either lessened in severity or entirely cured; but during treatment these were more or less aggravated.

EATON.

**Septic Sinus Thrombosis Due to Ear Infection.**—B. ALEX. RANDALL—*Medicine*, July, 1903.

Contrary to the opinion of many writers on this subject, the author thinks the diagnosis extremely difficult in no small group of cases. He is of the opinion that many of the writers give a too clear presentation of its symptoms, stages and operative control, which causes some operators to look for the full complex of classical symptoms before operating. Two cases are cited to illustrate the difficulty in establishing the diagnosis.

He believes that if good access to the bulb of the jugular can be gained without extensive bone-cutting, the gain in time and avoidance of shock may greatly outweigh any theoretical thoroughness. For this purpose he uses a spoon with curves adapted to most any condition of the sinus. Early ligation of the jugular and the removal of infected tissues in the neck are advised.

STEIN.

**Case of Cholesteatoma of the Mastoids in which the Cavity in the Bone was Filled with Paraffin.**—T. S. KIRKLAND—*The Australasian Medical Gazette*, May 20, 1903.

In this case a large cavity was left in the mastoid after removal of a cholesteatomatous mass and in order to shorten the process of healing of this cavity the author conceived the idea of filling it up with paraffin. Accordingly this was done after first sterilizing the cavity by means of alcohol. Within a month from the date of the original operation and 14 days after embedding the paraffin the mastoid was completely healed. It was claimed for this plan that it has two decided advantages. Firstly, shortening the duration of the cure and secondly avoiding the deformity which may be expected after removal of a large amount of tissue.

H. RUSSELL NOLAN.

**Extirpation of the Larynx and Artificial Larynx.**—F. ARDENNE—*Revue Heb. de Laryng. D'Otol. Rhin.*, Presse Med. Belge, June 6, 1903.

Goris describes two cases in which he had removed the larynx, one more completely than the other. Both appeared to be free of recurrence. One of the patients, in whom the whole larynx had been removed could speak much more distinctly than the other in whom one of the vocal cords had been preserved. The author asks if from the standpoint of the voice, it is not better in such cases to practice total extirpation.

W. SCHEPPEGRELL.

**A Case of Acute Mastoiditis (Bezold Variety) Without Perforation of the Drum Membrane. Operation. Recovery.**

ARNOLD H. KNAPP—*Archives of Otology*, Vol. XXVIII. No. 1. 1899.

Cases of acute empyema of the mastoid process, with little or no apparent involvement of the middle ear, are uncommon.

Mr. A. L., æt. 21, applied for treatment at the N. Y. O. & A. Inst. on May 20, 1898, for loss of hearing and tinnitus in the left ear. Present illness came on one week ago, after a cold. Left ear: conversational voice  $\frac{8}{60}$ . Rinne negative. Drum membrane intact, of normal color and retracted. Slight prominence at upper and posterior quadrant, paler in color than the rest of the membrane. Not tender, and without signs of acute inflammation. Hearing improved after inflation. Mastoid region normal. Right ear: voice  $\frac{2}{60}$ . No high tones. Rinne negative. Drum membrane retracted and atrophic. No improvement after inflation. Nose and throat fairly normal. No pulmonary or syphilitic signs anywhere. Patient visited clinic at intervals of six weeks. Hearing in the left ear grew gradually worse. Swelling at upper and posterior quadrant persisted without pain or inflammatory signs. In the night of July 15th patient suddenly experienced severe pain in the region of the left ear. The area behind and below the ear became swollen and red. Pain continued. Patient became prostrated, with the temperature of  $101^{\circ}$ . On admission to the hospital two days later he presented the picture of a typical Bezold perforation, with torticollis and painful swelling at the upper end of the sterno-mastoid. Entire mastoid region tender. Drum membrane appeared unchanged. Free paracentesis was made in the prominent part of the membrane tympani, but only a minute quantity of bloody serum escaped. Patient was put to bed with an ice cap on the ear. Symptoms returned the next day with renewed intensity. Never any discharge from the paracentesis wound.

July 21st mastoid cortex was entirely removed. Mastoid cells were converted into one large cavity filled with carious bone, pus and granulations. Pus could be seen issuing from a hole in the medial bony wall of mastoid, high up and directly beneath and in front of the antrum. A probe inserted into this bone led into a cavity covered externally by the mastoid tip and the sterno-mastoid muscle. After careful curetting of the antrum, the entire wound was packed with gauze. The wound healed without complication, and the hearing in the left ear returned quickly. On November 20th left ear whispered  $\frac{10}{20}$ . Rinne Positive. The unusual course

of the disease in this case, the author thinks due to the morbid process affecting a tympanum already more or less diseased, as evidenced by the retracted drum membrane and the condition of the other ear. Concerning the operative treatment of a perforation of the inner wall of the mastoid process, the desirability of removing the tip and the medial bony wall of the mastoid to a point above the sight of the perforation is evident. The entire abscess cavity is thereby exposed, and freed of any overhanging bony wall, permitting the collapse of the soft parts and the ready dressing of the remote parts of the wound.

F. C. E.

**Three Cases of Rhinellcus (Ulceration of one Nostril) Coincident with Lesions of the Posterior Cord of the Medulla.**—PIERRE MARIE and GEORGES GUILLAIN—*Revue Heb. de Laryngol. D'Otol. et de Rhinol.*, Jan. 17, 1902.

The author makes a clinical report of three patients, two of whom admitted syphilis, who suffered from ulcerations on different parts of the face and especially on the ala of the nose; these ulcerations spread slowly and ended in cicatrization with loss of substance.

These patients presented at the same time certain symptoms of tabes, and, in one of the cases, a post-mortem examination revealed a light sclerosis of the posterior cord.

The author enquires whether there is a relation between these facial ulcerations and the sclerosis of the posterior cord.

W. SCHEPPEGRELL.

**Tonsillar Hemorrhage Following the Removal of the Tonsils by means of Cutting Forceps; Arrest of the Hemorrhage by Tamponing the Tonsillar Space, Combined with Suturing the Pillars.**—E. ESCAT—*Rev. Heb. de Laryngol., D'Otol. et de Rhinol.*, Sept. 27, 1902.

This ingenious method of arresting hemorrhage after tonsilotomy is shown in the accompanying illustration from the *Revue Hebdomadaire de Laryngologie, D'Otologie et de Rhinologie*, September 27, 1902.

The author calls attention to the danger attending the removal of the tonsils even by means of cutting forceps, the unreliability of most of the hemostatics, and the efficiency of the above method of tamponement.

W. SCHEPPEGRELL.

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## BOOK REVIEWS.

**The Eye, Ear, Nose and Throat**, Vol. III, of the Practical Medicine Series of Year Books, edited by G. P. HEAD, M.D., Chicago. 325 pages. Cloth, \$1.50 net. The Year Book Publishers, Chicago.

The Eye section is edited by Casey A. Wood, C.M., M.D., D.C.L. The Ear, by Albert H. Andrews, M.D., and the Nose and Throat, by G. P. Head, M.D., all of Chicago.

Each editor reviews, with care, the important advances made in the various specialties, with a brief resume of the important monographs which were presented during 1903. It is, as are all the numbers of this series which have been brought to our notice, a handy, valuable and reliable reference.

M. A. G.

**The Refraction and Motility of the Eye**, for Students and Practitioners, by WILLIAM NORWOOD SUTER, M.D., Ass't Surgeon Episcopal Eye, Ear and Throat Hospital, at Washington, D. C. Illustrated with 101 engravings in the text and four plates in colors and monochrome. Cloth, 390 pages. Lea Brothers & Co., Philadelphia and New York, Publishers.

The book is written in a manner, simple enough for the beginner, but thorough and reliable enough for the specialist, and we consider it a valuable compend to the larger text-books.

M. A. G.

**NOTE:—Diseases of the Nose and Throat**, by CHARLES H. KNIGHT, was reviewed in the last issue under the title, "**Diseases of the Ear and Throat**," a mistake which we hereby correct.

M. A. G.

**The Surgery of the Head**. By BAYARD HOLMES, Professor of Surgery in the University of Illinois, etc. New York, Appleton & Co., 1903. In this first volume of a series, "Surgical Emergencies," the author states that "the books will contain a full discussion of all those emergencies which the average practitioner of medicine meets in his daily practice. There are 19 chapters, of which one discusses Abscess of the Brain, Naso-pharyngeal, Adenoids, Middle Ear Disease; another, Abscess of the Brain of Otitic origin; a third, Sigmoid Sinus Thrombosis, Extradural abscess; a fourth, Empyema of the Accessory Sinuses of the Nose. Others are devoted to subjects, like facial neuralgia and carcinoma of the tongue, which are of the greatest importance to the otolaryngologist.

It is thus shown how beneficial to the general practitioner is special knowledge and, necessarily, how essential a more careful training in these special fields is to the properly equipped medical student. And those specialists to whom is delegated the duty of familiarizing medical men, be they older practitioners or undergraduates, with oto-laryngological diseases, will find this book most helpful and suggestive, as it abounds in the fruits of the experience of a well-known medical pedagogue. The simple, direct, and clear language will appeal to many readers, among whom should be specialists who consider the outlook from a general surgeon's point of view as both broad, and stimulating to thought and criticism.

G. M.

